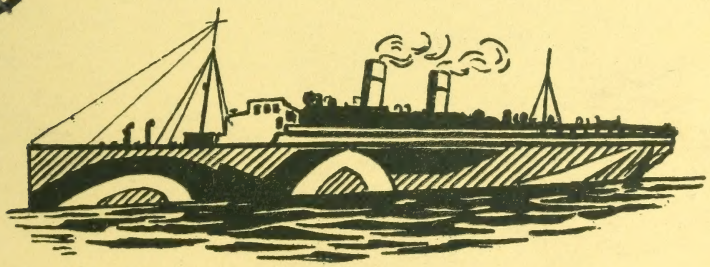
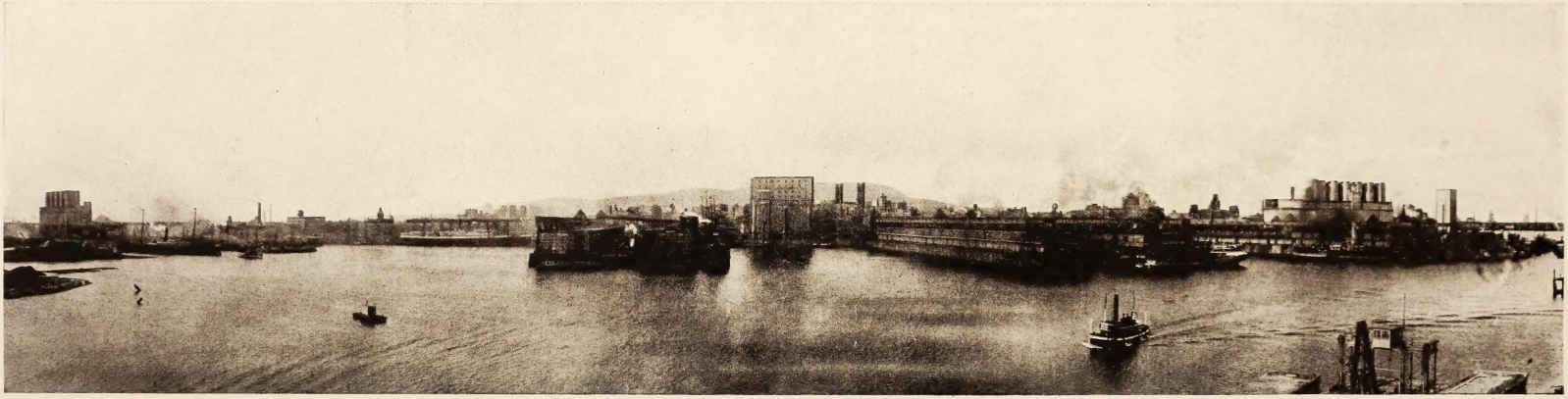
HARBOUR COMMISSIONERS OF MONTREAL

The HARBOUR of MONTREAL



ANNUAL REPORT
1918

Colliers' Weekly:—Do not get the impression that our English cousins have been asleep in this all-important shipping problem of loading and unloading. The contrary is true. Take the question of harbours alone; here is an instance almost at our doors. Within the past decade, while New York has been at odds with itself and with others, Boston fumbling, and Philadelphia asleep, Canadian enterprise has been building at Montreal one of the most modern and efficient harbours in all the world. Yet the harbour of Montreal is a thousand miles from the sea, and for at least five months of the year is closed by ice. What Canada is doing at Montreal she is repeating at Halifax and at Vancouver. Only it has always struck me that the development of the Port of Montreal is one of the most daring and sportsman-like pieces of commercial enterprise that ever has come before my eyes.



Montreal Harbour—Central Portion.

The Harbour has eight miles of completed wharfage at this date, capable of accommodating one hundred vessels, as follows:—

For vessels of 500 feet in length, and drawing 30 feet of water	28 berths.
For vessels about 400 feet long, with draught of 25 to 30 feet of water	36 berths.
For vessels 300 feet long, with draught of 20 feet of water	17 berths.
For vessels 200 feet long, with draught of 10 feet and over	19 berths.

Eighteen vessels of 1,000 feet long could be berthed in the Harbour at one time.

Twenty-one large well-lighted double-storey transit sheds, about 500 feet long by 100 feet wide, are available for goods destined for shipment.

ANNUAL REPORT

OF THE

Harbour Commissioners

of Montreal

For the Year 1918

OFFICIALS

M. P. FENNELL, Jr., Secretary-Treasurer

THOS. F. TRIHEY, Cashier

F. W. COWIE, M. Inst. C.E., Chief Engineer
SIR JOHN KENNEDY, Consulting Engineer
T. W. HARVIE, Assistant Chief Engineer

J. NEHIN, Gen'l Supt. of Grain Elevators

GEO. GENDRON, Mechanical Superintendent

CAPT. T. BOURASSA, Harbour Master
CAPT. J. F. SYMONS, Deputy Harbour Master

GEORGE E. SMART, Comptroller

ROBT. A. EAKIN, Paymaster and Wharfinger

J. VAUGHAN, Supt. of Railway Terminals
R. L. MERCIER, Asst. Supt. of Railway Terminals

L. H. A. ARCHAMBAULT, Purchasing Agent

Harbour Commissioners of Montreal

MONTREAL, MARCH 5th, 1919

To the Hon. C. C. BALLANTYNE,
Minister of Marine and Fisheries,
Ottawa, Ont.

Sir,—

In compliance with Section 51 of the Commissioners' Act 57-8 Victoria, Chapter 48, the Harbour Commissioners of Montreal herewith respectfully submit their Annual Report of Operations for the year ended 31st December, 1918.

We have the honour to be,
Sir,
Yours very respectfully,
W. G. ROSS, President
F. ROBERTSON,
A. E. LABELLE,
Commissioners.

Montreal Harbour, 1872. Sailing Ships at Low Level Wharves.

Harbour Commissioners of Montreal

ANNUAL REPORT—1918

FOREWORD

The Harbour Commissioners of Montreal made the statement in 1917 that the Annual Construction Programme, which reached a maximum in 1912, was reduced to the lowest in many years in order to comply with the wishes of the Government.

Again, in 1918, the construction programme was further reduced, amounting to almost complete cessation of new works.

On the other hand the year 1918 was unique in many important phases as may be noted from the following :

1. The number of transatlantic vessels which arrived at the Port of Montreal in 1918, viz., 644, was greater than that of any other year in the history of the harbour.

2. The gross revenue of the port was larger than ever before reached.

3. Larger vessels and greater draft than ever before sailing from Montreal.

4. Heaviest export shipments ever recorded.

5. Large number of merchant vessels flying the United States flag sailing from the Port of Montreal.

6. A minimum of grain arriving at Montreal Harbour by water and the maximum by railway.

7. The scarcity of labour and high rates.

8. The influenza epidemic.

9. Maximum record of operation of harbour railways and the success of the Harbour Marginal Railway in connection with industrial development.

10. A minimum of marine accidents or casualties in the Harbour of Montreal and the River St. Lawrence Ship Channel.

11. Hay-pressing for the United States Government.

12. The extensive handling of heavy packages by the Harbour Commissioners' Floating Crane.

13. Shipments of fuel oil.

14. Latest closing of navigation on record.

The trade and commerce through the Port of Montreal, and a comparison of the figures relative to Montreal and some of the important Atlantic Ports, is of special interest.

The information contained in the following tables is taken from the Annual Report of the Montreal Board of Trade and from statistics furnished by the Department of Commerce of the United States:—

New York	1917
Value of Imports	$1,338,199,355
Value of Exports	3,053,119,504
	$4,391,318,859

Port of Montreal

Value of Imports	$ 214,885,029
Value of Exports	534,876,677
	$ 749,761,706

Philadelphia

Value of Imports	$ 109,485,782
Value of Exports	464,471,031
	$ 573,956,813

Boston

Value of Imports	$ 217,905,287
Value of Exports	225,578,485
	$ 443,483,772

Baltimore

Value of Imports	$ 43,972,790
Value of Exports	374,033,121
	$ 418,005,911

New Orleans

Value of Imports	$ 104,516,862
Value of Exports	303,510,401
	$ 408,027,263

Galveston

Value of Imports	$ 8,505,116
Value of Exports	266,279,258
	$ 274,784,374

TABLE OF THE TRADE OF THE PORT OF MONTREAL

Years	Trans-Atlantic Vessels arrived in Port	Total Tonnage	Value of Merchandise Exported	Value of Merchandise Imported	Total Foreign Trade
1918	674	1,933,482	406,793,498	$178,021,111	$584,814,609
1917	579	1,984,233	534,876,677	214,885,029	749,761,706
1916	569	1,965,161	382,741,463	194,924,348	577,665,811
1915	484	1,657,728	155,685,953	115,919,977	271,605,930
1914	551	2,039,133	119,478,589	140,591,066	260,069,657
1913	477	2,020,333	99,398,102	154,485,087	253,883,189
1912	409	1,775,487	87,679,422	148,977,605	236,657,027
1911	401	1,695,613	71,254,446	129,811,810	201,066,256
1910	411	1,658,414	71,642,648	114,473,845	186,116,493
1909	371	1,436,963	76,474,485	96,787,938	173,262,423
1908	364	1,315,688	80,583,171	79,851,814	160,434,985

THE HARBOUR OF MONTREAL—SPECIAL FEATURES

First and foremost, Montreal is on the Line of Route, East and West, between the great Northwest of the American Continent and European Ports.

The Harbour of Montreal is at the Head of Ocean Navigation on the St. Lawrence, and at the Foot of the Inland Navigation of the Great Lakes.

The great Transcontinental Railway Lines of Canada all reach Ocean Navigation at Montreal.

During seven months of the year, the Canadian Transportation System via the Harbour of Montreal can at present compete on equal terms, or better, with the great Lake and Rail Transportation Systems of the United States.

The financial sacrifices the Canadian people have made in order to obtain East and West Transportation Routes through Canada is given publicity on every hand. Equal publicity is unfortunately not given to the value of this to Canada and to the Canadian people, who earn their livelihood and gain their incomes from Transportation. It is only necessary to analyse the efforts and financial resources being readily placed at the disposal of the rival Transportation Routes through the United States, and through United States Ports, in order to fully appreciate the true value of Canadian Commerce being routed through Home Transportation Channels and Canadian Ports.

In view of the new order of things resulting from the readjustment of business after the War, and the efficient and quick dispatch of cargoes through the Harbour, enquiries are being received as to possible accommodation and facilities for new shipping connections.

The Harbour Commissioners of Montreal would call attention to the favourable opportunities at the present time.

The American and Canadian West is rapidly becoming an

important factor in British and Foreign Commerce. Business connections which may now modestly commence, must have a successful future.

The strategic position of Montreal Harbour being demonstrated, both with regard to the Map and to actual recorded results, it is believed by the Harbour Commissioners of Montreal that it would be of general interest to give a brief outline of the **Navigation conditions, accommodation and facilities in the Port and Harbour of Montreal.**

NAVIGATION CONDITIONS

Table of Distances

From	To Liverpool Nautical Miles	To Rotterdam Nautical Miles
Montreal		
(via Belle Isle)	2,760	3,293
(via Cabot Straits)	3,007	3,540
Quebec		
(via Belle Isle)	2,625	3,158
(via Cabot Straits)	2,872	3,405
Halifax	2,485	2,771
St. John, N.B.	2,692	2,978
Portland, Me	2,776	3,062
Boston	2,854	3,140
New York	3,036	3,322
Philadelphia	3,172	3,458
New Orleans	4,525	4,813
San Francisco		
(via Panama Canal)	7,843	8,107
Vancouver		
(via Panama Canal)	8,648	8,912

The River and Gulf of St. Lawrence

The distance from Belle Isle to Montreal is 873, and from Cape Race to Montreal 965 nautical miles.

Masters of magnificent British ships, who have spent their lives trading to the Ports of Africa and Asia, and who have during the last two seasons been coming to Montreal for the first time, have expressed their satisfaction and even admiration regarding the River St. Lawrence Ship Channel and the aids to Navigation. They have expressed their surprise and admiration at the facility with which their large ships can navigate up the River St. Lawrence, by night as well as by day, to the Docks at Montreal, and to the fact that when they have reached their berth, they have no anxiety in the tideless waters of the Harbour as to the care or safety of their ship.

Without making unfair claims, the records of the four and a half seasons of navigation during the war should be sufficient to convince the navigators distinctly in favour of the St. Lawrence Route. During this period of the war, when ships were valuable and cargoes urgently required, and when the St. Lawrence Liners, with their experienced crews, were not available, vessels commanded by navigators who had never sailed to the St. Lawrence entered the Gulf, and after their first voyage to Montreal readily gave appreciative opinions as to the improvements and safeguards, resulting in a navigation much less hazardous and even less intricate than many of the world routes in Northern European Waters, in the Mediterranean or to the American Seaboard.

In view therefore of the energetic action adopted by the Department of Marine and Fisheries in improvements to navigation and in the safeguarding and care of vessels while in the St. Lawrence, the outlook for ocean navigation to the Port of Montreal is considered exceedingly favourable.

The record during 1918, of vessels having a draft of 28 feet and over, as seen elsewhere in this report, is worthy of note.

The 35 ft. channel now being dredged by the Government between Montreal and the sea is well under way and it is expected will be available for ships in a few years. The Harbour Commisssioners have already provided several berths for vessels of this draft.

The channel, having a width of from 450 to 750 feet, well marked by range lights and lighted buoys, will provide a route safe and facile for vessels up to 20,000 tons.

The St. Lawrence route is becoming more attractive year by year. The three-day trip in calm waters, within signalling distance of the shore, is appreciated by many passengers, and the record of the regularity and safety of ships which formerly plied to distant ports in the world, but which regularly sailed to and from the St. Lawrence during the war, will aid greatly to a better knowledge of the delights, traditions and safety of the St. Lawrence Route.

In the Annual Report of the Department of Marine and Fisheries for the fiscal year 1917-18, Mr. Alexander Johnston, Deputy Minister, devotes an admirable chapter to the "part Canada proposes to take in building of ships—to provide adequate means for carrying her own commodities overseas" as follows:—

INSURANCE RATES AND THE ST. LAWRENCE ROUTE

"The formation of a Canadian merchant marine brings "into greater prominence the question of the restrictions "placed on the trade of this route by insurance underwriters, "as compared with Atlantic port routes; restrictions which, in "the opinion of a number of men qualified to judge, are some-"what unfair.

"The discrimination against the St. Lawrence route has "been carried out despite the constant work of improvement

"done in the widening and deepening, and the lighting and "buoying of the ship channel between Montreal and Father "Point; the expenditure on this work has exceeded $1,000,000 "annually for the last three years, as follows: For the fiscal "year 1914-15, $1,105,187; 1915-16, $1,101,820; 1916-17, "$1,122,479; and the total cost of the channel since its in- "ception in 1851 to the end of the fiscal year 1917 has been "$21,520,371.

"From Montreal to Quebec is 160 statute miles, and from "Quebec to Father Point 181, and it is doubtful if any other "waterway in the world of equal extent is more thoroughly "safeguarded.

"In the department's annual report for 1916-17, the sup- "erintending engineer of the St. Lawrence ship channel drew "attention to a communication received from Messrs. Henry "Fry and Company, Lloyd's agents at Quebec, emphasizing "the fact that no accident had occurred to any sea-going "vessel between Father Point and Quebec in the course of the "year, and he attributes this not only to the improved light- "ing and buoying of the channel, but also to the increased "efficiency of the Pilotage Service.

"If the continued improvement and additional safety of "this route from year to year have not the desired effect of "inducing Lloyd's to lower the insurance rates for vessels "trading on it, it may be necessary, in the interests of Can- "adian shipping, for the Government itself to take some steps "to equalize the difference between the rates to Quebec and "Montreal and those to the Atlantic ports.

MARINE SIGNAL SERVICE

"Signal stations have been established for the purpose of "maintaining communication between ship and shore by "means of flag signals.

"This system of stations extends from St. John, N.B.,

"Halifax, N.S., Cape Race, Nfld., and Belle Isle, up the gulf "and river St. Lawrence and through the Great Lakes to "Sault Ste. Marie, Ont."

"Following is a complete list of stations East of Quebec:—

Name of Station	Location	Nautical Miles from Quebec	Means of Communication
RQuebec	Custom House	0	Telephone
xSt. Jean d'Orleans	Shore end of wharf	14	do
Crane Island	Lighthouse	32	do
L'Islet	100 yds. east of church	40	Telegraph
Cape Salmon	Lighthouse	81	Telegraph and telephone
Riviere du Loup	Shore end of wharf	92	Telegraph
Father Point	do do	157	do
Little Metis	Lighthouse	175	do
Matane	do	200	do
Pointe des Monts	do	219	do
Cap Chat	do	234	do
Riviere a la Marte	do	260	do
Cape Magdalen	do	294	do
FFame Point	do	325	do
Cap des Rosiers	do	349	do
Cap d'Espoir	do	377	do
Point Maquereau	do	400	do
West Point, Anticosti	do	332	do
Southwest Point, Anticosti	do	360	do
South Point, Anticosti	do	415	do
FHeath Point, Anticosti	do	438	do
Point Escuminac, N.B.	do	462	do
Amherst Island, Magdalen Islands	do	481	do
St. Paul Island, C.B.	Main Station	540	Telephone
FMoney Point, C.B.,N.S.	Lighthouse	537	do
FFlat Point, N.S.	do	575	Telegraph
FCape Ray, Nfld.	do	553	do
Cape Race, Nfld.	do	826	do
FPoint Amour	do	673	Wireless Telegraph
FBelle Isle	do	734	do
Camperdown, N.S.	Near Wireless Stn	....	Telephone
Halifax, N.S.	The Citadel	....	do
Brier Island, N.S.	Near Lighthouse	....	do
Point Lepreau, N.B.	Lighthouse	....	do
Partridge Island, N.B.	do	....	do
St. John, N.B.	Custom House	....	do
Point Tupper, C.B., N.S.	Lighthouse (Gut of Canso)	....	do
Scutari Island, N.S.	Lighthouse (east end)	....	do

LIST OF STATIONS WEST OF QUEBEC

Name of Station	Location	Nautical Miles from Quebec	Means of Communication
Bridge Station	Half mile above new railway bridge on south shore	6	Telephone
St. Nicholas	At tidal semaphore	12	do
Portneuf	In front lighthouse	31	do
Grondines	In old windmill tower	41	do
St. Jean Deschaillons	At tidal semaphore	45	do
Pointe Citrouille	Lighthouse	55	do
Three Rivers	Upper end of Bureau Wharf	68	do
Sorel	Middle of Government Whf. facing St. Lawrence River	100	do
Belmouth	About 500 ft. east of Contrecoeur lower range light	110	do
Cap St. Michel	On extreme point of Cap St. Michel	125	do
Longue Pointe	Short distance below presbytery	134	do
RMontreal	La Sauvegarde Bldg., 92 Notre Dame St. E	139	do

WEST OF MONTREAL

Name of Station	Location	Nautical Miles from Montreal	Means of Communication
RLachine Canal	Lock No. 2	0	Telephone
R do	Lachine	8	do
RSoulanges Canal	Cascades Point	21	do
R do	Coteau Landing	33	do
RCornwall Canal	Cornwall	62	do
R do	Dickinson's Landing	72	do
RGalops Canal	Lift Lock	99	Telegraph
RWelland Canal	Port Dalhousie	298	do
RWelland Canal	Port Colborne	321	do
RSoo Canal	Sault Ste. Marie, Ont	820	do

(Stations marked thus, R, are reporting stations only, and are not equipped for signalling purposes. Stations marked X, closed during the period of the war. Stations marked thus, F, are equipped with flash lights or night signalling.)

AVERAGE DEPTH FOR EACH MONTH IN THE 30-FOOT CHANNEL AT SOREL

(30 Feet at extreme low water of 1897.)

Year	May	June	July	August	September	October	November	High	Low
1907	37′ 1″	35′ 9″	34′ 3″	32′ 10″	32′ 4″	32′ 9″	33′ 7″	38′ 3″	31′ 10″
1908	41′ 5″	37′ 10″	33′ 10″	32′ 10″	32′ 0″	31′ 0″	30′ 6″	42′ 4″	30′ 0″
1909	40′ 6″	37′ 6″	33′ 10″	33′ 2″	32′ 7″	32′ 4″	31′ 6″	42′ 7″	30′ 11″
1910	35′ 7″	34′ 5″	32′ 3″	31′ 7″	31′ 6″	31′ 6″	31′ 7″	37′ 1″	30′ 7″
1911	36′ 6″	34′ 6″	32′ 1″	31′ 3″	30′ 9″	30′ 2″	30′ 3″	38′ 1″	29′ 4″
1912	37′ 9″	37′ 6″	33′ 6″	32′ 8″	32′ 6″	32′ 6″	34′ 9″	40′ 11″	31′ 3″
1913	37′ 0″	34′ 4″	32′ 8″	31′ 10″	31′ 6″	32′ 1″	32′ 7″	38′ 6″	31′ 1″
1914	35′ 2″	33′ 0″	32′ 4″	31′ 4″	31′ 3″	30′ 11″	31′ 0″	36′ 10″	30′ 3″
1915	34′ 7″	32′ 6″	31′ 6″	31′ 4″	31′ 1″	30′ 11″	30′ 8″	37′ 4″	30′ 1″
1916	38′ 9″	37′ 2″	34′ 0″	32′ 5″	31′ 7″	31′ 9″	31′ 10″	40′ 0″	30′ 9″
1917	36′ 8″	36′ 6″	34′ 10″	33′ 6″	32′ 3″	32′ 6″	33′ 0″	38′ 2″	31′ 3″
1918	35′ 1″	33′ 0″	32′ 10″	30′ 11″	31′ 4″	32′ 6″	33′ 10″	36′ 11″	30′ 3″

The Table showing the draft of water in the River St. Lawrence Ship Channel to Montreal gives detailed information as to the capacity of the route for ships.

The St. Lawrence Route to the Port of Montreal is therefore well worthy of the attention of Commercial and Shipping Interests in their contemplated new fields of activity.

The Honourable C. C. Ballantyne, Minister of Marine and Fisheries, who was formerly a member of the Montreal Harbour Commissioners, is taking an earnest part in the development of British and Foreign Shipping through Canadian Ports.

The interest shown in providing means of transportation, in improving and safeguarding the St. Lawrence Route and in making every effort to place such information before the world, regarding the advantages and security of the route, by the Minister of Marine and Fisheries, representing the Canadian Government, is already showing excellent results. From the time ships enter the Gulf of St. Lawrence until they are safely berthed at their docks, vessels may be in constant communication with the Authorities and their Agents, and every possible safeguard is provided by the Canadian Government.

MARINE RECORD

It is a proud record for the masters and officers of the various ships which arrived and manoeuvred and departed from the Port of Montreal during the year 1918, and especially of the splendid Pilotage Service, that there was practically an entire freedom from serious accidents or marine casualties in the Port of Montreal and in the River St. Lawrence Ship Channel.

Navigation was carried on day and night more regularly than ever before. The lights and buoys and other Aids to Navigation and the Pilotage System were beyond criticism.

Masters of ships of the celebrated Union Castle and P. & O. Lines, who had never been up the St. Lawrence or to the Port of Montreal before, gave splendid certificates of the excellence of the Aids to Navigation and improvements, which have resulted in such a splendid water highway to the Port of Montreal.

The Union Castle Line steamship "Llanstephan Castle" which visited the Port of Montreal during the season, which is herewith illustrated, is a sister ship of the notable "Llandovery Castle."

ACCOMMODATION

Canada has a wonderfully cheap asset in Montreal Harbour. The total cost, $28,000,000, is represented by:

One hundred steamship berths from 350 to 750 feet in length, with a depth of water of 20 to 35 feet.

Thirty-five of these steamship berths are at modern concrete wharves, built in the past few years.

Two large modern fireproof elevators with conveyor system to 15 steamship berths, at which 9 vessels can be loaded with grain at one time.

Twenty-one permanent fireproof transit sheds.

Fifty-one miles of Harbour Railway Terminals.

Complete and valuable construction and repair plants.

About 200 acres of land situated in the most valuable position, industrially, in Montreal, all reclaimed.

At which other port in the world could such valuable accommodation be shown, created at such low cost ?

The extent of the wharves and piers at the end of the season is as follows:—

For 30 ft. draft and over at O.L.W.....	25,905 lin. ft.	or 4.9062 miles
For 25 to 27½ ft.....	13,442 lin. ft.	or 2.5458 miles
Total deep draft....	39,347 lin. ft.	or 7.4520 miles
Included in this, five berths are available having a depth of 35 feet at O.L.W.		
For 20 ft. draft and under.	3,105 lin. ft.	or 0.5880 miles
Total wharfage, end of 1918..	42,452 lin. ft.	or 8.0400 miles

The Port of Montreal, in 1918, reached a commanding position in connection with commerce between North America and Europe, owing to the safety of the ocean route, and to the fact that Montreal Harbour was ready and adaptable for either War or Peace commerce.

Shipments through the Port of Montreal were limited only by the extent of accommodation in the harbour and by the volume of freights the railways centering at Montreal were able to handle. Never in the history of the port has there been a better co-ordination between the railway organizations, the Harbour Authorities and the Director of Shipping.

Had the War come five years earlier, the Port of Montreal would certainly not have been in a position to handle the War business which has been carried on during the past four and a half years. The views of the port authorities who have for years studied the possibilities and recommended the enlargement of the Harbour Facilities have been amply justified.

FINANCIAL STATEMENT

Statement of Receipts and Disbursements for the year 1918, hereto annexed, shows Receipts on Revenue Account of $2,104,191.48, an increase of $253,544.55 over the previous year.

The cost of Operation, Maintenance, Interest, etc., was $2,026,542.07,an increase over the previous year of $129,148.63, leaving a balance to the Credit of Revenue Account for the year of $77,649.41. The interest charges, which amounted to $903,585.17, show an increase of $10,833.32 on new loans, due to the continued carrying out of works of improvement.

There was received from the Dominion Government on loan $380,000.00 on account of Capital Expenditure for Works of Improvement, and $300,000.00 to retire Public Debentures, which matured 5th July, 1918.

The Disbursements on Capital Account, in 1918, were $271,239.31.

The Debenture Debt of the Corporation on the 31st December, 1918, was $27,222,000.00, of which $26,485,000.00 is due to the Government and $737,000.00 to the Public.

FACILITIES

Grain

Montreal Harbour has Special Equipment and Facilities for the Storage and Shipping of Grain.

Three large modern fireproof elevators, having a combined

HARBOUR COMMISSIONERS OF MONTREAL.

Statement of Receipts and Disbursements for the Year ended 31st December, 1918.

ITEMS	Totals	Grand Totals
RECEIPTS ON REVENUE ACCOUNT.		
Grain Elevator System	$610,701.23	
Railway Traffic Department	481,560.44	
Wharfage Rates	510,805.27	
Rental of Sheds, Hoists, etc	264,148.57	
Rental of Harbour Spaces	112,360.47	
Sundry Receipts on Revenue Account	124,615.50	
Total Receipts on Revenue Account		$2,104,191.48
RECEIPTS ON CAPITAL ACCOUNT		
Dominion Government Advances under Act 4-5, George V., Chap. 41		680,000.00
Security Deposits received from Contractors		2,359.26
Grand Total Receipts		2,786,550.74
Outstanding Accounts, &c., 31st December, 1918	995,044.33	
Less: Outstanding Accounts, &c., 1917	745,764.41	
Balance of Outstanding, to add		249,279.92
		$3,035,830.66

ITEMS	Totals	Grand Totals
DISBURSEMENTS ON REVENUE ACCOUNT		
Grain Elevator System, Operation and Maintenance	$267,514.30	
Railway Traffic, Operation, Maintenance, etc	395,326.67	
Harbour Equipment, Operation and Maintenance. (The above do not include Interest, Depreciation, Administration, etc.)	77,580.29	
Miscellaneous and General Expenses	127,783.43	
Police Service on Wharves	55,816.53	
War Service Allowance and Patriotic Funds	15,130.71	
Sundry Disbursements on Revenue Account	108,804.97	
Reserve Accounts, for Depreciation, etc	75,000.00	
Total Operation, Maintenance, etc	1,122,956.90	
Interest on Debentures	903,585.17	
Total Disbursements on Revenue Account		$2,026,542.07
DISBURSEMENTS ON CAPITAL ACCOUNT		
Bickerdike Pier, New Approach	$109,219.20	
Montreal East Wharf, Sections 109-110	15,001.36	
Windmill Point Wharf Embankment	3,669.78	
High Level Wharves, Sections 25 to 30	2,469.22	
Harbour Boundaries	310.75	
Victoria Pier Wharf	260.39	
	130,930.70	
Less: Received for Dry Dock Railway Tracks Grading and Filling	23,227.22	
Wharves, Piers and Basins, Net Total		107,703.48
Harbour Railway Tracks and Sidings	169,229.68	
Less: Received for Dry Dock Railway Tracks	20,995.93	
Harbour Railway Tracks, Net Total		148,233.75
New Plant—Flat Scows	7,278.99	
New Harbour Yard Sheds, Balance	259.65	
Plant and Buildings, Total		7,538.64
Real Estate, Hochelaga		6,012.88
Electric Hoists and Elevators, Balances		1,074.21
Altering Guard Pier		676.35
Total Disbursements on Capital Account		271,239.31
Security Deposits returned to Contractors, 1918		3,321.20
Public Debentures, Series G, due 5th July, 1918, retired		300,000.00
Grand Total Disbursements		$2,601,102.58
Security Deposit Account, now included in Accounts Outstanding		2,039.01
Balance at 31st December, 1918:		
Bank of Montreal	302,283.99	
Cash on Hand	4,000.00	
Accounts Receivable	495,385.70	
Materials in Stock at 31st December, 1918	450,715.96	
Total Balance at 31st December, 1918	1,252,385.65	
Less: Balance at 31st December, 1917	819,696.58	
Difference in Balance, to add		432,689.07
		$3,035,830.66

Certified:
George E. Smart, Comptroller.

Verified:
Riddell, Stead, Graham & Hutchison, C.A., Auditors.

Certified:
M. P. Fennell, Jr., Secretary-Treasurer.

Montreal, 1st March, 1919.

storage capacity of 8,812,000 bushels, are situated in the most advantageous positions in the harbour.

Grain grown in the West is shipped to Montreal, either by water from the head of the Lakes, directly, or by Lake and Rail Routes.

Grain from the elevators may be delivered to vessels at their berths. Eleven different ships may receive grain at the same time, each at the rate of 15,000 bushels per hour.

It is recognized that the Port of Montreal is unique as an ocean port in Grain Handling Facilities.

Flour and Lumber for export, in lower floor of steel shed.

Flour

The facilities for handling and shipping of flour are also most advantageous.

From the local flour mills in Montreal, flour may be delivered on motor trucks direct to the upper floors of the seventeen double-storey fireproof transit sheds by means of electric hoists. These upper floors, capable of carrying a load of 650 lbs. to the square foot, provide excellent storage for flour in well ventilated cold storage areas. From these

upper storeys, the flour is delivered to the holds of the ships by chutes.

Flour arriving from interior mills by railway car is delivered alongside the lower floor of transit sheds and trucked direct from car to the ship's slings.

At various times in the last two years, there have been stored in the upper storeys of these sheds many thousands of tons of flour. In one case 20,000 tons were stored at one time in the upper storeys of two of the harbour sheds.

Oats

Practically the only grain exported in sacks is oats. In each of the elevators in Montreal Harbour there are sacking facilities, and oats may be delivered in sacks for storage in the upper floors of the transit sheds ready for quick delivery to ships, or may be delivered direct to the ship's slings on the lower floor.

Compressed Hay in upper storey of Shed 24, ready for export.

Hay

Hay arriving in farmers' bales at about 18 cubic feet to the 100 lbs. is compressed on the harbour to about one-third of its former cubic capacity. The capacity of the compressing plant is about 4,400 tons per week.

Lumber

The Port of Montreal has for many years been noted for the large quantities of lumber and timber shipped.

Special wharves have been built, having ample storage space and convenient railway approaches. During later years, the Liners have been carrying partial cargoes, and this requires the lumber to be delivered direct to the ship's slings. The Commissioners have specially built barges suitable for lighterage, so that lumber and timber may be taken overside, by liners, so as not to interfere with package freight from the transit sheds.

The following record of Aeroplane Timber Shipments, from the "Canadian Forestry Journal", January, 1919, is of interest, as the greater portion of these shipments were made through the Port of Montreal:—

AEROPLANE TIMBER SHIPMENTS

British Columbia Production at close of War Provided Material for 30,000 Planes

"The demands of the war have occasioned the most "phenomenal development of many industries. Not the least "among these is aeroplane lumber in British Columbia. This "province, in the thirteen months since the first request came "from the Imperial Government for this material, has pro- "vided approximately 9,000,000 feet of Douglas fir and 26,000,- "000 feet of Sitka spruce aeroplane lumber. This is sufficient "wood for over 30,000 ordinary planes.

"When the operations commenced there were on the Queen "Charlotte Islands three small sawmills at Massett Inlet and "on the mainland pulp at Ocean Falls and Swanson Bay and a "small sawmill at Georgetown, near Prince Rupert. The "sawmills on Massett Inlet were put into commission and two "new mills built. New plants were also constructed at Prince "Rupert and Skeena City. Approximately three thousand "men were employed on the work in the northern spruce "forests.

"During the thirteen months that operations were con- "ducted, the output was increased from 100,000 feet per month "to 6,500,000 feet per month, and if the war had continued an "even larger supply would have been secured.

"The lumber from the Queen Charlotte Islands and the "northern mills was loaded on barges and towed to Prince "Rupert, where the Grand Trunk Pacific Railway installed "several cranes, which transferred it to the cars. It was not "an uncommon thing for solid trains of aeroplane lumber to "be despatched from Prince Rupert. Owing to the urgency "of the demand for this material it received preference "over all other freight on both the railways and ships.

"The Imperial authorities have tried all the known kinds "of wood for aircraft and have found that Sitka spruce is far "superior to any other. The quality of spruce growing in "Northern British Columbia is undoubtedly the very best "that can be secured. It is a well-established botanical fact "that the farther north any plant can be grown successfully, "the better the quality, and this seems to be borne out in the " case of Sitka spruce."

Miscellaneous Package Freight

Miscellaneous package freight, dairy and packing-house products, canned goods and ordinary manufactured articles,

for export, are practically all delivered alongside the sheds by railway cars. The large transit sheds are so designed as to permit the unloading and loading of a Liner a week, the ship usually being at the berth four or five days, the balance of the time being required for storing and removal of cargo.

Heavy Manufactured Articles

These heavy articles, from 5 tons up to 75 tons, are unloaded from railway cars by the large floating crane and lightered direct to the ship's side and again lifted and stowed, by the same crane.

Fuel Oil

Three large oil plants are located at wharves specially designed and built with all modern conveniences, for the unloading or loading of oil.

Cement

Two wharves have been built for the immense cement plants situated on lands adjoining the river front in the harbour.

SHIPPING

During 1918, 674 sea-going vessels arrived in port, with a tonnage of 1,933,482 tons, navigated by 40,094 seamen, as against 647 vessels with 2,010,767 tons in 1917.

Although the number of sea-going vessels arriving in port during 1918 does not constitute a record, the number of transatlantic vessels, viz., 644, is the greatest in the history of the harbour, the balance, viz., 30, being vessels from the Maritime Provinces.

In August, 1914, the day the War was declared, there were 49 ocean ships in port.

In November, 1918, the day the armistice was signed, there were 46 vessels in port, the greatest number at any two periods in the history of the harbour.

The usual tables of vessels arriving in port during the year will be found elsewhere in this report.

EXPORT FREIGHTS

The actual shipments by vessels, under the direction of the British Ministry of Shipping, to Allied countries, through the Port of Montreal, to the number of 184 transports and 240 liners, or 424 vessels handled through the Director General (Canada), may be given as follows:—

Wheat	508,733	gross tons
Oats	452,958	
Flour, etc	490,792	
Packing house and dairy products	349,933	
Miscellaneous	16,545	
Lumber	50,252	
Fuel Oil	209,210	
Munitions	492,315	
Total	2,570,818	gross tons

In the month of October, the total shipments amounted to just under 600,000 tons. The above does not include the extensive shipments through the Port of Montreal, by 175 vessels sailing under the United States flag, nor the 55 other British vessels, nor the 20 vessels of neutral countries, sailing from the Port of Montreal to various Allied and neutral ports.

UNITED STATES SHIPPING

The American flag was very much more in evidence in the

Port of Montreal than ever before known. 175 vessels flew the American flag, the total tonnage being 244,949.

Most of these American ships were built on the upper Lakes and brought down, either in sections to be put together, or complete, ready for sea.

Many ships were built at the shipyards of inland United States ports and brought down through the canals in sections and then joined together, the joining together of these sections during the last two months of the season being carried on by a very extensive and efficient organization.

The trim ships of the St. Lawrence Canal size, built complete, beautifully camouflaged, arrived down through the canal and loaded at Montreal for the sea.

It is to be hoped that many of these ships, suitable for the Lake and Montreal Trade, will return to the St. Lawrence at an early date.

Camoufla ged ships loading in Montreal Harbour.

CO-ORDINATION BETWEEN THE BRITISH MINISTRY OF SHIPPING, THE HARBOUR COMMISSIONERS AND TRANSPORTATION ORGANIZATIONS

The record of shipping through the Port of Montreal during the year 1918, in the face of more serious difficulties than ever before existed, is in itself an indication of successful co-ordination of effort between the Commissioners, the British Minister of Shipping and the Railway Companies.

The Commissioners desire to pay tribute to the splendid work of the Minister, Sir Arthur Harris, and his Staff, in the able and energetic manner with which they handled the situation, and to the Railway Companies for their expeditious delivery of freight.

At the conference in Ottawa in March, called by the Prime Minister, there were representatives from the Board of Railway Commissioners of Canada, the British Minister of Shipping, the Railway Transportation Interests, the Marine Transportation Interests and the Harbour Commissioners of Montreal and Quebec.

At this conference, a general idea of the programme of shipments was outlined and the various transportation interests agreed to handle the traffic, the Harbour Commissioners of Montreal to provide facilities and the British Minister of Shipping the necessary tonnage.

During the summer, weekly conferences were held and a programme outlined for the movement, receipt and handling of traffic.

Although the Convoying System resulted in a congestion of shipping in the Port at certain times, with corresponding empty berths at others, the movement of freight through the Port of Montreal was carried out with comparative regularity, and to the maximum the Transportation Systems were able

to handle. There were no embargoes, and through the co-operation of the various officials and superintendents, the trainloads of freight delivered to the harbour were very rarely delayed.

It was gratifying to the Commissioners to receive the following letter from the British Ministry of Shipping:—

W. G. Ross, Esq.,
President, Montreal Harbour Board,
Montreal.

Dear Mr. Ross,

I am now engaged in demobilizing our staff and expect the affairs of the Department to be wound up shortly.

I desire to thank you and the Members of the Harbour Board for the hearty support and assistance rendered the Department during the past four and a half years.

The knowledge that I enjoyed the confidence of the Board and that I could depend upon you for support gave me encouragement to persevere under conditions which sometimes appeared unsurmountable.

I wish for you personally, the Members of your Board, and your efficient Secretary, continued health, happiness, and prosperity, and that the business of the Port may continue to extend under your able administration.

With kind regards, believe me,

Yours faithfully,

(Signed) A. H. Harris,

Director General.

CANADIAN VICKERS LIMITED NAVAL CONSTRUCTION WORKS

The following information was received from the Canadian Vickers Limited in connection with their Naval Construction Works at Maisonneuve, on a reclaimed site in the Harbour of Montreal, constructed in 1910-12:—

Vessels constructed throughout by the Canadian Vickers Limited, both as regards Hulls and Engines, and delivered into Service.

S.S. "Porsanger"—Single deck cargo vessel, for Norwegian interests.

Deadweight carrying capacity.....	7263 tons
Length between perpendiculars....	380 feet
Breadth moulded.....	49 feet
Depth moulded.....	30 feet

S.S. "Samnanger"—Single deck cargo vessel, for Norwegian interests.

Deadweight carrying capacity.....	7359 tons
Length between perpendiculars....	380 feet
Breadth moulded.....	49 feet
Depth moulded.....	30 feet

Four single deck cargo vessels, for Ministry of Shipping.

Length between perpendiculars....	380 feet
Breadth moulded.....	49 feet
Depth moulded.....	30 feet

View of Vickers Limited Floating Dock and Shipbuilding Plant.

The deadweight carrying capacity of these vessels is as follows:—

"War Earl"	7211 tons
"War Duchess"	7278 tons
"War Faith"	7263 tons
"War Joy"	7267 tons

S.S. " Canadian Voyageur "—Single deck cargo vessel for Canadian Government.

Deadweight carrying capacity	4350 tons (approximately)
Length between perpendiculars	320 feet
Breadth moulded	44 feet
Depth moulded	25 feet

This vessel was launched during the latter part of November. Owing to the approach of the close of navigation, she proceeded, under her own steam, to Quebec, in December, for completion. She was duly handed over to the Government and sailed from Quebec on the 21st January for Halifax. During the voyage she was delayed several days by ice and reached port on February 4th.

S.S. " Canadian Pioneer "—Single deck cargo vessel, for Canadian Government.

Deadweight carrying capacity	8100 tons (approximately)
Length between perpendiculars	400 feet
Breadth moulded	52 feet
Depth moulded	31 feet

This vessel was launched early in December and was towed to Quebec for completion. Subject to a few minor details which cannot be completed at Quebec, owing to climatic conditions, the vessel is now ready for handing over to the Government.

The Canadian Vickers Limited also built all the deck machinery for the above vessels and have constructed a large quantity for outside parties.

Thirty-one vessels were repaired on the Floating Dry Dock, representing a gross tonnage of 115,631.

Shipbuilding contracts in hand, for delivery during 1919, comprise five 8100 deadweight ton and one 4350 deadweight ton steel cargo vessels for the Canadian Government, and one 8300 deadweight tonner for French interests.

RECOMPRESSING OF HAY. Sheds Nos. 24—25

The plant owned and operated by the Department of Agriculture of Canada in Sheds 24 and 25, leased by the Harbour Commissioners, was again extensively used for the recompressing of hay, and as a depot for United States Government vessels and shipping.

Sheds 24 and 25, and Railway Tracks, where Compressing and export of Hay has been done during war period.

Eighteen hay compressors are installed amd almost steadily throughout the year were working to capacity, frequently day and night, every day throughout the month.

This gave steady employment to a large number of men and increased the traffic in the port very materially.

From the Dairy and Cold Storage Branch of the Department of Agriculture the following information has been obtained, giving the record for the year:—

Recompressed, 233,615,716 lbs. or 116,807 1716-2000 tons.

Shipped by twenty steamers direct to France, 16,014,203 lbs. or 8,007 203-2000 tons.

Shipped by twenty-six barges to New York City for over seas, 6,275,833 lbs., or 3,137 1833-2000 tons.

Shipped by cars to different United States Ports for loading to France, 211,325,680 lbs., or 105,662 1680-2000 tons.

The record of operations for any one day, which was on April 23rd, 1918, is as follows:—

Unloaded 80 cars, or 12,496 bales equal to 1,733,519 lbs.

Recompressed 1,473,396 lbs.

Loaded in cars for Newport News for overseas, 83 cars of recompressed hay, or 41,257 bales equal to 4,256,145 lbs., or 2,128 tons.

HIGH EXPLOSIVES

The handling of high explosives as a war measure was a necessity, and Montreal Harbour had to assume the share of danger undertaken by all great ports. In handling the same, however, every scientific and practical precaution was taken, a special staff of detectives in addition to the Harbour Police force being engaged in guarding both railway cars and ships while within the Harbour limits, besides which admission to the Harbour was restricted to only those holding special passes issued by the Commissioners.

During the season the "Sir Hugh Allan" equipped with a machine gun, mounted forward, was used as a patrol boat for the purpose of enforcing regulations restricting pleasure craft, motor boats, etc. to certain limits.

Throughout the season everything worked in the most admirable manner, in spite of the fact that there were occasional difficult situations to be worked out.

A total of 12,155 gross tons of explosives were shipped during the season, taken by 17 ships, the maximum load carried by any ship being 1,000 tons.

PROPOSED WAREHOUSE AND PUBLIC COLD STORE.

The Harbour Commissioners have recommended, for several years past, the construction "in a favourable location in Montreal Harbour" of a public fireproof Warehouse and Cold Store, to be administered and operated in the same way as the public grain elevators, which have resulted so successfully in the development of transportation and trade via Canadian Railways and the St. Lawrence Route.

1.—Public Warehouse.

Importers located at many centres in Canada represented to the Harbour Commissioners the fact that stocks which they would desire to import, when prices are favourable and ocean transportation possible, is not practicable to them on account of the fact that there is not available in Montreal Harbour a Public Bonded Warehouse.

Another feature is the necessity of making provision for the storage of imports not removed during the allotted period and which obstruct business in the Harbour Commissioners' Transit Sheds.

The final requirement is Warehouse provision for Canadian-manufactured goods which may be shipped from factories at interior points to the Harbour of Montreal, and held until transportation conditions and a market abroad are favourable.

It is proposed to locate such a Warehouse where easily accessible from the City and from the various Railway Terminii, and favourably situated as regards the harbour berths. In order to avoid cartage, freights may be carried between the Warehouse and the sheds by railway car at a minimum rate.

The construction of such a Warehouse would not only, therefore, result in economy in Transportation Costs, but in Facilities for Canadian Importers and Exporters.

2.—Public Cold Storage Facilities.

The proposition for Cold Storage Facilities on Montreal Harbour is a new project.

In more recent years, however, especially since the development of the Dairying Business in the West, there has been a demand in their interests for a Public Cold Store, which would take care of their produce in carload lots and assure prompt and careful shipments to the ships when required.

The Western Canadian Packers have had many conferences with the Harbour Commissioners and have officially represented their urgent requirements. Their argument is that if mixed farming is to be a success in the West, the Canadian packers and merchants must have facilities at Montreal for the protection of their goods during the usual periods of waiting at the port.

The Harbour Commissioners are of opinion that a Warehouse with Cold Storage Equipment, particularly for Export

Trade, is an absolute necessity for Canada and the Port of Montreal.

The design of facilities proposed for this Warehouse and Cold Store have in view three features:—

1. Economy. By erecting this Warehouse on the harbour, directly connecting with railway and with ship, the handling charges may be greatly reduced. By constructing a modern reinforced concrete building, fully protected, rates of insurance will also be very greatly reduced.

2. Temperatures. The plant is to be designed with the most modern, up-to-date methods of securing the required temperatures and protection for perishable goods.

3. Shippers from interior points and the West will have the assurance that their goods will be properly protected in the Port of Montreal, while waiting for ships or transportation.

COLONEL THE HON. C. C. BALLANTYNE,
Minister of Marine and Fisheries,
Ottawa, Ont.

Dear Mr. Minister,—

In compliance with your request that full and complete information be obtained for the information of the Government, in connection with the proposition placed before you by the Harbour Commissioners of Montreal, for the commencement of construction this year of a Permanent Warehouse and Cold Store, I have to give you the following information:—

By arrangement, an official of the Department of Agriculture—Mr. J. A. Ruddick—accompanied by the Secretary and the Chief Engineer and Construction Engineer of the Harbour Commissioners, made an inspection of warehouses and cold-storage plants in New York and Boston.

A complete report of the Chief Engineer on this inspection has been considered by the Harbour Commissioners, of which the following is a synopsis:—

New York.

In the produce centre of New York, there is the usual system of cold-storage warehouses, very much similar to those in the produce centre of Montreal. They are not modern, and only partially fireproof, and as regards temperatures and economy of handling, there is nothing of interest to Canadians.

Shortly before the war, however, one of the largest companies—the Merchants Refrigerating Company—acquired a site directly opposite Chelsea Piers, the most highly developed part of New York Harbour.

On this block of land, a magnificent warehouse, three-fifths of which is devoted to cold storage and two-fifths for dry storage, has been erected. This warehouse is approached directly by railway car and it is expected that conveyors will carry stored products to the ships.

This magnificent plant was completed about a year ago, and although constructed at a very high cost, on a site costing $600,000, the immense warehouse was filled six weeks after completion and has been turning business away every day since.

The unique features of this warehouse are similar to the Montreal Harbour Commissioners' ideas, viz.—

1. A site on the harbour.
2. Railway and trucking facilities.
3. Electric power.
4. Economical handling facilities.
5. The required temperatures.
6. Special stores for provisioning ships.

The cubic capacity of this new warehouse in New York is about 9,000,000 cubic feet; about double the size of the proposed Montreal plant.

The cost of the building, including foundations, came to about 20c. per cubic foot at early war prices. The total cost of the building and mechanical equipment, without land, was given as $2,300,000, and, with the land, $2,900,000.

The Montreal Harbour proposition has in view a building about one-half the size of the New York structure and is similar in that it is proposed to insulate for cold storage three-fifths, leaving two-fifths for dry storage.

The insurance rate for contents, in this new building, is given as 11c. per $100.

BOSTON

The Quincy Market Cold Storage and Warehouse Company owns and operates a very extensive system of cold stores and warehouses, in the produce centre of Boston.

This company has recently constructed a new Harbour Cold-Storage Warehouse directly on the old "T" wharf.

This cold-storage building is somewhat smaller than the Montreal Harbour proposition.

The new building, equipped for receiving from railway cars and delivering to ships, cost, at early war prices, $944,000, without land.

The Harbour Commissioners' representatives agreed with Mr. Ruddick that the Boston "T" wharf plant was the best basis for the establishment of unit prices. The manager of the Boston Company stated that these unit prices were high, and he considered that at the present time better construction costs could be obtained.

Based on the Boston unit prices, the cost of the Harbour Commissioners' proposed structure would be higher than according to the original estimate of $1,000,000, as follows:—

MONTREAL

The structure will be divided into two parts:—

1. Cold Storage: 256 ft. x 108 ft. x 105 ft.
2. Dry Storage: 160 ft. x 110 ft. x 105 ft.

Total cubic contents.....4,751,040 cu. ft.

(Original building: 400 ft. x 100 ft. x 100 ft.=4,000,000 c.f.

Estimating this structure at 15½c. per cubic foot, the cost would be:—

1.	Superstructure.....	$736,411.00
2.	Foundations. Both New York and Boston plants being erected on wooden pile foundations, the estimate for such foundation, with concrete slab, for Montreal would be..	100,000.00
3.	Sprinkling system, 10 elevators, wiring, etc., estimated at the same unit price as Boston, viz.—3½c. per gross c.f.....	166,286.00
4.	Refrigeration, pumping plant, insulation, electric plant, etc. on the cold storage structure having a gross of 2,903,040 cubic feet, at the Boston unit price of 11c.....	319,334.00
5.	Power house, building, etc.....	77,969.00
		$1,400.000.00

As regards the financial question, it has been reported to the Harbour Commissioners that both the New York and Boston plants, which were designed before and constructed during the War, have proved themselves to be particularly successful financially. They do not interfere with the down-town produce business, but attract new business from many points in the interior, in various parts of the country, and result in available storage at the ports.

In the cases of New York and Boston, it was evident that these new storage plants, closely connected with the harbours, were not only financially successful, but they were fulfilling the idea of giving aid to the western producers.

Trusting this information will be sufficient for your requirements, and that approval may be given for the expenditure during the present year of $500,000, according to programme presented to you in January, believe me,

Yours faithfully,

(Signed) F. ROBERTSON,
Acting President.

The following are characteristic letters from the Trade, recommending the immediate construction of this Warehouse:—

MARITIME FISH CORPORATION LIMITED

Montreal, December 10th, 1918.

Harbour Commissioners,
Montreal.

Dear Sirs:—

In reference to the proposition for a cold storage plant operated by the Harbour Commissioners of Montreal, I might say that I am of the opinion that this would be a wonder-

ful advantage to the port of Montreal, not only from a local standpoint, but also from a standpoint of an Ocean Terminal in the general interests of the natural products of Canada, from the Pacific to the Atlantic.

A cold storage plant, built and operated under the auspices of the Harbour Commissioners, would develop a large export business on food products, and at the same time this plant could be made self-sustaining by charging the nominal cold-storage rates in effect at any ocean terminal where cold storage is necessary.

It has already been proven that Canada can export large quantities of frozen fish to England and Europe, and to further illustrate this development, I might say that Canada has shipped during the past two years approximately 18,000,000 pounds of fresh frozen fish to England, and a large quantity of this frozen fish has also been sent to France, and the product has already demonstrated to the consuming public in England, that Canada's frozen fish products are destined to become a permanent article of diet with the consuming public in England. These frozen fish products originated from the Pacific Coast, the Great Lakes and the Atlantic, and from this you will learn that a cold storage to take care of frozen fish products would be in the interests of our Atlantic, Pacific and Great Lake fisheries. During the war very much larger quantities of frozen fish would have been sent overseas had there been sufficient cold storage space available at ocean terminals and particularly at Montreal.

I think perhaps it would be interesting for me to compare this frozen fish business from Canada with the frozen rabbit industry from Australia. Several years ago a small consignment of frozen rabbits were shipped from Australia to England, and the business grew to such an extent that ship loads of these frozen rabbits were being sent over to England,

and the Australian frozen rabbit is to-day a standard high-grade article of food in the United Kingdom.

A cold storage at the terminal in Montreal would also be of great advantage in the beef and bacon industry, and to dairy products.

If we, in Canada, are to secure a share of this business, cold-storage facilities must be made available, and with the wonderful development in the refrigerator equipment by the Transportation Companies of Canada, something should be done to facilitate the handling of products requiring refrigeration through Canadian Ports, otherwise these products will likely move via United States Ports. One needs only to look at the development of the Railway equipment within the past five years, when it will be seen that the Canadian Pacific Railway have added a large number of modern refrigerator cars suitable for travelling on freight trains; the Dominion Express have added a large quantity of refrigerator car equipment suitable for travelling by express and passenger trains; and the Canadian Government Railroads have within the past few years also added a great many refrigerator cars to their equipment.

The writer has been informed that during the past two years the United States Government, realizing the great advantage of cold storage, built four large cold-storage plants in France, with a view to developing their frozen meat and fish products in France; and while these were built as a war measure, still, on the other hand, my information is to the effect that arrangements were made at the time of building these plants with four of the large packing houses at Chicago to take over and operate these cold-storage plants for commercial purposes at the termination of the war.

In conclusion, I might add that the Canadian Fisheries Association, representing the Fisheries from the Atlantic to

the Pacific, of which I have the honour to be President, would, I am quite sure, heartily endorse a movement by the Harbour Commissioners to own and operate a cold storage plant at the National Harbour of Montreal, in the interests of the development of Canadian Fisheries and the National Port of Montreal.

Yours truly,

MARITIME FISH CORPORATION LIMITED,

(Sgd.) A. H. Brittain,

Vice-Pres. and General Manager.

P. BURNS & COMPANY, LIMITED

102 Board of Trade Bldg.,

Montreal, February 20th, 1919.

The Harbour Commissioners,
Port of Montreal,
Montreal,

Gentlemen,—

Confirming conversation our Mr. Musser had with one of your officials regarding a proposed cold-storage plant for the Port of Montreal, as Mr. Musser was hurriedly called away he has requested the writer to express our views in conjunction with his, relative to the matter in question.

Along with all other Canadian Packers we are deeply interested in this project, as undoubtedly are 95% of all other concerns in Canada interested in the export of perishable products. Not alone for our own immediate private requirements are we interested, but for the good of the agricultural interests of Canada in general. If Canada is to become a factor in the Export Trade, it can only be brought about

through proper storage facilities at seaboard, and these we have not got at the present anywhere in Canada.

We certainly commend your views and those of the Department of Agriculture at Ottawa, in proposing to assist this project, and hope that the present agitation from a few private interests at Montreal will not prejudice the situation as against the benefits to be derived by the whole of Canada if the proposition is brought to a successful issue.

At present there is a certain amount of cold storage space available at this port but only at odd times during the year, and at no time is there sufficient or proper accommodation for meat products, for the following reasons:—

Firstly,—The present storages have not the proper facilities for handling products in or out, except in a very slow way, and you will appreciate that steamship companies require despatch and will not put up with slow deliveries.

Secondly,—They are not situated on railway trackage, which, in turn, necessitates the teaming of all products going into and then out of storage, and which during the summer months, on account of exposure, is very detrimental to fresh frozen meat products, whether intended for export or otherwise.

Thirdly,—They are not properly equipped for the maintaining of sufficiently low temperatures during the summer months, required to take care of fresh frozen meat products, and it is during this season that freezer protection is necessary.

There have been several instances during the past two years where packers have been forced, on account of no available freezer space at Montreal, to reship trainloads of frozen beef to Toronto and other outside points for storage and later reship same back to Montreal for shipment export. All of which, you will appreciate, adds very materially to the cost,—in fact, would, under ordinary circumstances, prohibit business entirely.

From this you will readily see the utmost importance of having a modern and amply large public cold-storage building at Montreal, and which should be located on railway trackage in close proximity to the docks and so built as to handle a trainload of meats in or out daily if necessary. This freezer should also be provided throughout with sufficient refrigeration in order that zero temperatures could be maintained if necessary, as a storage that can only produce temperatures of 20 degrees above zero is not a protection to fresh frozen meats but, on the contrary, is detrimental.

Until such accommodation is furnished at this port, Montreal can never expect to properly compete with other American seaports having storage facilities; consequently, the sooner these facilities are furnished, the sooner will increased business be offering. A point well worth considering is the fact that our direct steamers to England and the Continent, all in conjunction with a proper cold storage, would give facilities for shipment by American packers from Chicago and elsewhere, thus making for this port new business which heretofore has all been going through New York.

The matter of cost of storage to the exporter at seaboard is also vital, the present conditions making this altogether too high. For instance, we quote the following as local storage charges on a quantity of say 2,000 lbs. of meat products:—

Teaming to storage,	2,000 lbs.	@ 6¼c.	$1.25
" out of " ..	"	6¼c.	1.25
Insurance per month.	"	1.42 per $100. per annum	.60
Storage charges.....	"	.37½c. per 100 lbs.	7.50
This means 53c. per 100 lbs.			$10.60

On the other hand, storage at Boston, Portland or New York, where storages are on trackage and near docks, the only charge that is made is for storage at 25c. per 100 lbs. You will therefore note the difference of over one-quarter of a cent per lb., to say nothing of all the inconveniences, delays and danger to product through inefficient accommodations.

Yours very truly,

(Sgd.) A. Muir,
for P. Burns & Company Limited

HODGSON BROTHERS AND ROWSON

Montreal, February 22nd, 1919.

J. A. Ruddick, Esq.,
Dairy Commissioner,
Dept. of Agriculture, Ottawa, Ont.

Dear Sir,—

We were very pleased to note a publication a short while ago to the effect that the Government contemplates erecting an up-to-date cold-storage warehouse in Montreal on the harbour front.

We congratulate the Government in this move, as it will fill a long-felt want in Montreal. We understand some opposition is being raised by some proprietors of cold-storage warehouses here, but a glance at the general position should be ample evidence to the Government that the erection of a cold-storage warehouse, such as they contemplate, is of national importance.

The principal cold-storage warehouses in Montreal to-day are the Canada Cold Storage, the Gould Cold Storage, and Messrs. A. A. Ayer & Company's cold storage. Unfortunately, the rate of fire insurance on these premises, owing to

none of them being what might be called up-to-date cold-storage buildings, is exceedingly high as compared with the insurance rates obtainable by the up-to-date cold-storage warehouses in Chicago.

The latter obtain a fire insurance rate of 15c. per $100.00 on general produce; whereas the insurance rate on general produce in the cold-storage warehouses in Montreal to which we have referred varies from a minimum of 68c. up to $1.34 per $100.00.

In addition to this, none of the cold-storage warehouses in Montreal have switching conveniences and their location prevents the possibility of any railway switching conveniences being provided. The consequence is, therefore, that all the Montreal produce merchants have to face an additional charge in the way of cartage to and from these buildings when export business is done.

A cold-storage warehouse such as contemplated by the Government, if erected on the harbour front, would prove a great economic benefit not only to the Montreal produce merchants in the handling of their cheese and butter business, but it would be a general advantage to the whole farming community of this country.

As you are aware, fully 90% of the cheese business is of an export character, and the cheese arriving in Montreal are almost entirely for export. Under the present system, a large percentage of these cheese are brought by rail to Montreal and unloaded at the Montreal terminals, especially where mixed carloads are concerned, into a hot railway shed, where they sometimes lie exposed to the heat for a period of from 24 to 48 hours. The loss in weight, as well as the depreciation in quality which takes place, is a loss to this country. There would also be a saving of double handling. We are of the opinion that the saving in the loss of weight and the improve-

ment in quality should alone warrant the erection of such a cold-storage warehouse as is at present contemplated by the Government. As a financial obligation, the revenue derived would prove to be a good commercial investment, if such were necessary.

We are of opinion that the development of mixed farming in Canada will continue to grow, and it will not be long before possibly two or three more such cold-storage plants will be necessary in Montreal, to provide suitable storage for perishable farm products.

Our senior was in Chicago some time ago and investigated the cold-storage problem with a view of our erecting a cold-storage plant ourselves, and it was a revelation to him to find the immense quantities of Canadian meats that have been stored for several years past in the Chicago cold-storage warehouses, owing to lack of accommodation in Montreal. So impressed was one large cold-storage concern in Chicago, that the manager made the offer to our senior to erect a million-dollar storage building if a suitable site could be obtained, with switching facilities; but our senior was unable to assure him of a suitable location for such, excepting on the harbour front, which seems impossible for an outsider to obtain at present.

We are,

Yours truly,

HODGSON BROTHERS AND ROWSON

(Sgd.) A. H.

THE MONTREAL BOARD OF TRADE

Montreal, March 4th, 1919.

M. P. Fennell, Jr., Esq.,
Secretary, Harbour Commissioners of Montreal.

Dear Sir,—

I beg to communicate for information of your Board the resolution adopted by the Council of this Board with regard to the proposed erection by the Commissioners of a large Cold Storage Warehouse in the Harbour, same being as follows:—

> RESOLVED.—That the Council of the Montreal Board of Trade, being aware that the Montreal Harbour Commissioners have, after very full and lengthy consideration of the matter, prepared a scheme for the erection of a large Cold-Storage Warehouse in the Harbour, hereby records its hearty approval of such scheme as, in view of the great development of both import and export trade in perishable products which is so confidently anticipated, it would provide a most necessary adjunct to the port equipment,—
>
> That the Council, therefore, prays the Dominion Government to give its early approval to the said scheme of the Montreal Harbour Commissioners in order that the cold-storage facilities it will provide may be available at the earliest possible date.

I am, Dear Sir,
Yours truly,
(Sgd.) GEO. HADRILL,
Secretary

COPY OF A RESOLUTION PASSED BY THE SASKATCHEWAN GRAIN GROWERS' ASSOCIATION AT REGINA

February 21st, 1919.

This association, recognizing the great need for public cold-storage facilities at ocean ports for the preservation of our perishable farm products en route to European markets, view with satisfaction the action of the Dominion Department of Agriculture in financing a large modern cold-storage plant at Montreal, and trust that this is an indication of a nation-wide policy.

ELECTRIFICATION OF STEAM-OPERATED HARBOUR RAILWAY TERMINALS.

The Montreal Harbour Railway Terminals consist of surface lines situated between Victoria Bridge and the end of the piers on the south side of the canal; and the Marginal lines from McGill Street down to the Imperial Oil Wharf at Montreal East; having a total trackage of 55.35 miles.

Regularly, during the summer season, the shunting amounts to from 1,000 to 1,800 cars per day. In case of a breakdown in this service, the economic loss would be severe, as the car unloaders, longshoremen, and the various organized staffs would be immediately thrown out of work, with a resulting general loss of despatch.

Much of the success in Montreal Harbour is due to despatch in loading vessels and unloading cars, and effort is made by direction of the Harbour Commissioners for a prompt and efficient service. So successful has this service been that there was not a single complaint, although many might have been expected during the 200 consecutive working days in the Montreal Harbour navigation season.

In 1908, the Commissioners operated the traffic on the Harbour Terminals with three steam locomotives. During 1918, nine locomotives were in service, and the limit of car handling was reached at many times during the summer, and prompt steps must be taken by the Harbour Commissioners to avoid inevitable congestion in their terminals.

For export alone, day after day, 30 trains of from 25 to 30 cars arrived for distribution and unloading in Montreal Harbour.

The Commissioners, fully alive to the situation, visited the important Electrified Freight Terminals in New York and Philadelphia in 1914.

From information obtained, it was found that an electric locomotive could handle, summer or winter, at least 25% more than a steam locomotive and the operation was much more under control and therefore safer. It was found that Electrification was economical in Freight Yards and Terminals, as well as much more satisfactory.

The Commissioners called in an Electrical Engineer in 1914, who, in conference with the Engineering Department of the Harbour Commissioners, made a study of the problem and finally a report was submitted by this Engineer to the Commissioners, but owing to the financial condition during the War, construction was deferred.

The Report, "in view of the operating conditions", recommended the use of 2400 Volt, Direct Current, for operation of electric locomotives, the same high Voltage Direct Current System decided on and now being operated by the Canadian Northern Railway in connection with the Montreal Tunnel Terminal.

As the Superintendent of the Harbour Commissioners Railway Terminals has pointed out the urgent need for more locomotives for next year's operating work, the Commissioners

consider the immediate commencement of Electrification is of very great importance.

The Commissioners have consulted with the Electrical Experts of the Railways having their terminals in Montreal, and it is understood that the system now in operation in connection with the Canadian National Railways and the proposed projects will all be interchangeable with the system proposed for the Harbour of Montreal.

INDUSTRIAL DEVELOPMENT IN CONNECTION WITH HARBOUR COMMISSIONERS' MARGINAL RAILWAY

The extension of the Harbour Commissioners' Marginal Railway eastward along the river front of the Harbour of Montreal has already resulted in wonderful industrial activity from Hochelaga to Pointe-aux-Trembles. A few years ago the Montreal Cotton Mill was the limit of the industrial development along the water front in the eastern part of the City of Montreal. With the development of the harbour and the extension of the High Level Railways and the active operation of the railway terminals, this valuable manufacturing district has entered upon a new era of prosperity.

The following are some of the important industrial developments along the water front from Hochelaga to Pointe-aux-Trembles, established in recent years:—

The Asphalt & Supply Co., Limited
St. Lawrence Sugar Refineries Limited
The Canadian Spool Cotton Company
The Canadian Vickers Limited
The Canadian Steel Foundries Limited
The Montreal Locomotive Works Limited
The Shell Company of Canada

The P. Lyall & Sons Construction Co., Limited
The National Bridge Co. of Canada, Limited
The Canada Cement Co., Limited (Vulcan Plant)
" " " " " (Lakefield Plant)
The Imperial Oil Limited

The following chapter on Industrial Growth is taken from the "Montreal Gazette":—

"Industrialism in Montreal has invaded areas heretofore "consecrated to genteel living. Such industrialism as existed "was focussed along the canal bank in the west end. There "were many who, until the day before yesterday, said with "conviction, that business would never go east, and especially "the shipping business. It is in the east end that industrial-"ism has disclosed its greatest bulk. There are in the east "end dozens of mills and factories and machine and loco-"motive shops. There is a big population, living in comfort-"able homes on scores of streets in a district which was farming "country a few years ago. In Longue Pointe and Maison-"neuve, there is the most remarkable demonstration of in-"dustrialism in the Dominion. Scores of thousands of men "are working there and making big money. The ships, the "cars, the locomotive, the stationary engine, the big instru-"ments of industrial effort—all are fabricated here.

"Business has gone down to the east, where it is spreading "in all directions. It has cut up ancestral estates; it has "unfeelingly knocked down the ancient homestead around "which so many poignant memories clustered; and for the "piping of the songbirds, you have the raucous factory "whistle in the morning."

The principal reasons for the location of these manufacturing establishments in this district are the following:—

Splendid water front with ample depth of water and excellent sites for wharves.

Railway communication connecting all railways by Harbour Commissioners' Marginal System, and cheap switching rates.

Excellent industrial sites requiring no land improvement and having excellent foundations.

The district, as regards labour conditions, is unequalled anywhere in Canada.

Sites are still available, favourably situated for ship building or Manufacturing Terminals.

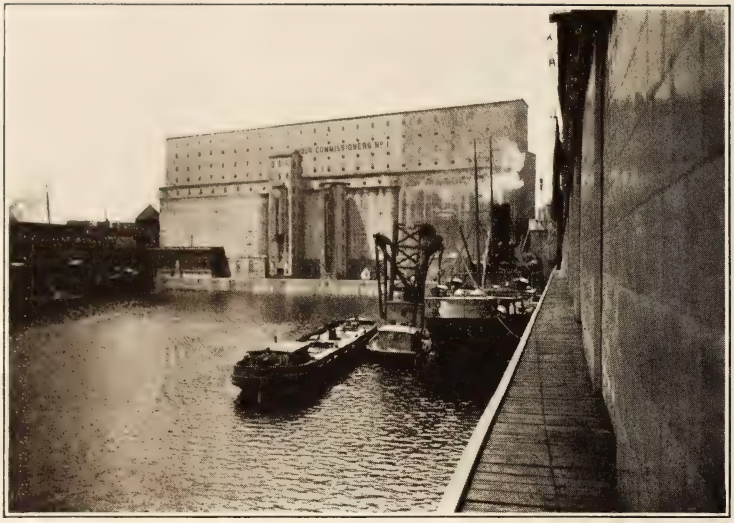
HARBOUR COMMISSIONERS' GRAIN ELEVATOR SYSTEM

The storage and handling of grain in the Port of Montreal during the season of 1918 was very extensive. Before the War, the grain from the West arrived at Montreal, 75% by water and 25% by railway. In 1918 this was so far reversed that the proportion arriving by water was only 12%, with 88% by railway. During the month of October the percentage reached 92% by rail and 8% by water.

The following is a record of the receipts and deliveries for the Harbour Commissioners' Elevator System and for the Grand Trunk Elevators "A" and "B" for the year 1918:—

The capacity of these elevators is as follows:—

Elevator No. 1.....	4,000,000 bushels.
Elevator No. 2.....	2,662,000
Grand Trunk Elevators ..	2,150,000



Harbour Commissioners'
Grain Elevator
No. 1

Dimensions: 530 feet long, 128 feet wide and 202 feet high.

Largest seaport elevator in the world. Storage capacity, 4,000,000 bushels.

Montreal has a handling and storage capacity in excess of any other North American Ocean Port, and can receive, store, handle and ship grain with greater despatch and economy than any other port on this continent.

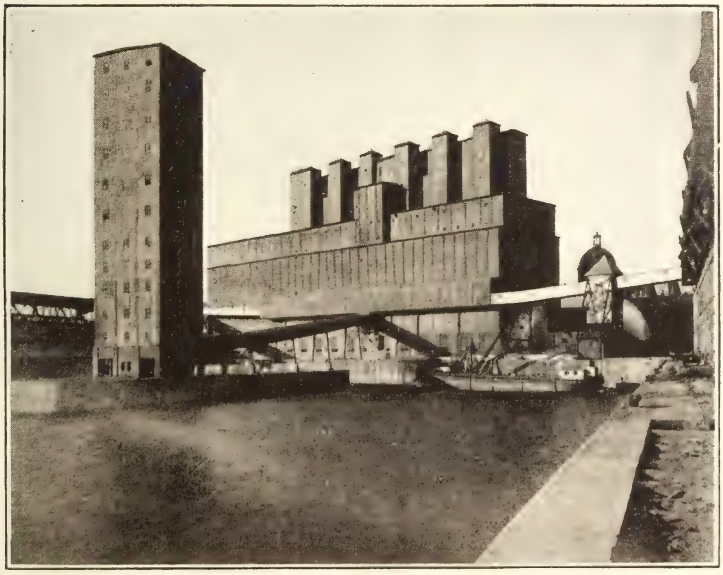
Harbour Commissioners'
Grain Elevator
No. 2

Dimensions: 457 feet long, 100 feet wide and 220 feet high.

Storage capacity, 2,662,000 bushels.

First large terminal elevator building constructed entirely of reinforced concrete.

Elevator No. 2 is connected with Elevator No. 1, and can deliver grain over 10 miles of rubber belting to all of the 15 steamship berths in the central Harbor, at the rate of 60,000 bushels per hour.



ELEVATOR No. 1

Date first vessel unloaded, May 10th, 1918.

Date last vessel unloaded, December 4th, 1918.

Total receipts, 20,636,722 bushels.

By water, 4,639,894 bushels, taken from 39 steamers and 66 barges, or 105 vessels.

By cars, 15,996,827 bushels, unloaded from 9,830 cars.

Delivery was made as follows:—

By conveyors	18,429,803	bushels.
cars	1,186,753	
teams	196,207	
bags	1,587,064	
	21,399,827	bushels

Number of bushels in stock at end of season ..... 3,644,587 bushels.

ELEVATOR No. 2

Date first vessel unloaded, September 21st, 1918.

Date last vessel unloaded, October 10th, 1918.

Total receipts, 24,657,345 bushels.

By water, 381,652 bushels, taken from 4 steamers and 1 barge, or 5 vessels.

By cars, 24,275,693 bushels, unloaded from 14,178 cars.

Delivery was made as follows:—

By conveyors	14,853,006	bushels.
cars	3,107,168	

teams	686,088
bags	2 048,540
	20,694,802 bushels.
Number of bushels in stock end of season	1,798,668 bushels.

FLOATING ELEVATORS

Amount of grain transferred, 226,621 bushels.

One floating elevator only operated during season.

Total Quantity of Grain Handled or Transferred.

ELEVATORS NOS. 1 and 2.

	bushels
1906	944,321
1907	1,078,289
1908	8,661,350
1909	11,691,071
1910	21,526,727
1911	21,007,164
1912	25,561,655
1913	44,000,000
1914	62,250,000
1915	37,317,367
1916	51,548,720
1917	42,831,504
1918	45,520,688

The following tables give details of operation of the Grain Elevators in Montreal Harbour:—

HARBOUR COMMISSIONERS' ELEVATORS NOS. 1 AND 2

Month	Cars Unloaded			Total cars	Vessels	Receipts Bushels	Deliveries Bushels	In store end of Month
	C.P.	G.T.	C.N.					
January	57	5	63	125	0	212,921	972,532	2,139,829
February	47	30	38	115	0	179,384	1,417,767	903,824
March	180	78	61	319	0	504,331	815,555	838,517
April	948	62	192	1,202	0	2,011,484	560,321	1,975,425
May	2,785	107	418	3,310	10	6,030,554	2,713,113	5,284,598
June	602	61	228	891	20	2,381,315	2,530,033	5,132,764
July	788	37	8	833	15	2,194,777	4,117,844	3,014,183
August	2,251	833	9	3,093	10	6,105,615	5,492,783	3,661,955
September	3,246	1,755	4	5,005	17	9,874,706	10,177,462	3,283,491
October	2,103	1,867	3	3,973	4	6,794,072	8,029,160	2,049,319
November	1,995	1,531	38	3,564	26	6,596,932	4,903,070	3,408,262
December	1,113	195	7	1,315	2	2,407,976	364,989	5,293,792
Total	16,115	6,561	1,069	23,745	104	45,294,067	42,094,629	

GRAND TRUNK ELEVATORS "A" AND "B"

Month	Cars Unloaded	Lake and Canal Vessels Unloaded	Receipts	Deliveries	In store end of Month
January	90	Nil	65,945	1,392,758	818,503
February	51	Nil	43,393	799,390	65,832
March	139	Nil	128,087	89,116	104,803
April	288	Nil	376,393	127,935	344,784
May	2,019	1	3,330,461	1,275,376	2,261,200
June	647	2	1,094,041	1,079,869	2,284,221
July	787	4	1,444,835	2,272,001	1,443,405
August	2,060	11	4,433,032	4,373,574	1,240,169
September	2,715	17	5,188,444	4,587,260	1,890,565
October	2,531	3	4,102,010	4,219,111	1,774,146
November	2,655	8	4,357,934	4,484,777	1,646,153
December	497	1	780,228	192,433	2,248,409
Total	14,489	47	25,344,803	24,893,600	

Lake and rail grain delivered by the Montreal Warehousing Company to Harbour Commissioners' Elevators during Season 1918, 5,872 cars containing 9,557,314 bushels.

The operation of the harbour elevators during the hot months in summer was attended with difficulty, owing to scarcity of labour and the very dusty quality of the grain.

The superintendents and their staffs had an arduous season owing to the above circumstances and to the great variation in grade of grain received, and to the general anxiety of the Director General of British Ministry of Shipping (Canada) and all concerned, for the despatch of vessels by loading at all hours, day and night.

HARBOUR RAILWAY TERMINALS

Eight years ago the Harbour of Montreal and the Railway Tracks were closed to all traffic in winter, the gates in the flood wall being permanently closed for four or five months.

The development of the harbour during the last 12 years has in view the best possible connection between the Harbour Terminal Railway and the Ocean steamship berths. In addition to this, the construction of the High Level Marginal Railway gives close and prompt transfer of cars between one railway and another and connects with the many growing industries along the rapidly developing water front.

The total mileage of the Harbour Tracks now amounts to 55.35 miles. The total cost of these railway tracks, including all high level embankment, subways, retaining walls, etc., stands at present in the books of the Harbour Commissioners of Montreal at about $2,000,000, or $36,000 per mile.

Facilities designed five years ago had become so congested as to force the immediate addition of tracks and sidings. The traffic in trainloads, with the frequency of two or three trains at one time, involves more and more track space.

The success of the Montreal Harbour Railway Terminals may best be exemplified by the table showing the mileage and cars handled, for the last ten years. From this table it will be seen that the mileage has about doubled; car handling increased about 4 times and financial returns nearly five times.

	Mileage of harbour railway tracks miles	Number of cars handled by Commiss'rs
1909	28.26	75,636
1910	28.86	79,466
1911	28.97	93,859
1912	34.91	112,911
1913	37.30	114,531
1914	39.88	114,449
1915	44.92	157,480
1916	49.11	234,439
1917	52.35	215,394
1918	55.35	247,009

The extent of the Harbour Commissioners' Railway Tracks at the end of 1918 is as follows:—

South of Lachine Canal, Bickerdike Pier, Windmill Point Wharf and West....27,759 lin. ft. or 5.2574 miles.
Sections 12 to 46, High Level, Main Line tracks.....51,170 lin. ft. or 9.6913 miles.
To piers, elevators, crossovers and sidings, etc.....97,333 lin. ft. or 18.4342 miles.
Sections 35 to 46, Low Level, Main Line tracks.....12,150 lin. ft. or 2.3011 miles.
Sections 46 to 101, High Level, Main Line tracks.....51,786 lin. ft. or 9.8079 miles.
To wharves, industries, etc.....39,362 lin. ft. or 7.4549 miles.
To Guard Pier.....10,400 lin. ft. or 1.9697 miles.
To South Shore, St. Lambert..... 2,300 lin. ft. or 0.4356 miles.

Grand Total tracks end, 1918.....292,260 lin. ft. or 55.3521 miles.
Grand Total tracks end, 1917.....276,395 lin. ft. or 52.3474 miles.

Increase in 1918..... 15,865 lin. ft. or 3.0047 miles

Winter Operations

There is probably no more notable feature in the development of the Railway Traffic in the Harbour than the growth of the winter traffic operations. Considering that prior to 1908 there was no activity whatever in the Harbour, the returns for 1918 showing a handling of nearly 50,000 cars, an increase of more than 10 per cent over 1917, the then busiest season, is all the more worthy of note.

Car Handling

No busier season of navigation than the past one has yet been experienced. Throughout the season there was a continuous flow of traffic increasing in volume each month, with the result that by the close of navigation, an increase in car handling, for the period of navigation only, had attained 25,000 cars.

Even with an average inward and outward movement of 900 cars per day, but a faint idea is conveyed of the work entailed, conditions being such, owing to the manner that vessels had to be loaded, the shifting of vessels from one berth to another, that whole cargoes after being placed at one shed, had to be re-switched to a different location after being held sometimes for several days on these terminals. Under ordinary circumstances such cargoes entailed but one handling.

About 150 troop trains were handled through the port during the season.

The welfare of the employees of the Department was not neglected, the Commissioners having put into effect the so-called "McAdoo Award" governing the wages and working conditions of railway employees, much to the satisfaction of all concerned.

Plant working on Extension of Railway Tracks.

Extension from Vulcan Wharf to Pointe-aux-Trembles

The High Level Railway at the end of last year had been completed to Desmarteau St., Longue Pointe, or three-quarters of a mile from the Canada Cement Company's wharf at Montreal East, and the extension has now been completed to the lower side of the Imperial Oil Company's wharf at Montreal East, a further length of nearly 1½ mile, thus completing the final section from Vulcan Wharf to Pointe-aux-Trembles, three miles in extent and linking up these two large industrial plants with the Harbour Railway System. The terminus of the High Level Railway as now completed, is 9 miles from McGill St., 4 miles from Racine Wharf and 3 miles from Vulcan Wharf. The embankment, as far as the Cement Company's Vulcan Wharf, has been constructed for double track and the remainder to the Imperial Oil Company's wharf has been made almost wide enough for three tracks.

Single track has been laid to Meese St., Longue Pointe. Below that, the road is double track to the terminus, with the exception of the crossing of the tracks at the Canada Cement wharf, which is single track. A third track has been laid for the full length of the latter wharf and a spur connecting with the wharf front has also been laid. The embankment, measured in situ, amounted to 270,000 cu.yds. and is composed roughly in half proportions of rock from the Bickerdike Pier Extension and clay excavated from the foreshore in the formation of an access channel at the site. The total amount of track laid was 14,348 lin. ft. or nearly 2¾ miles.

Access to the river was provided at Meese St., by a timber subway of 12 ft. span and 10 ft. headroom, while at Desmarteau and Hector Streets, level crossings with ramps on the outer face of the embankment were provided. Level crossings will also be required at the two wharves.

A finished section of Railway Track Extension.

SUMMARY OF RAILWAY CONSTRUCTION

Earthwork.

Embankment, Vulcan Wharf to railway terminus at Imperial Oil Wharf, Montreal East...	270,000 c.y. (In situ)

New Tracks.

Vulcan Wharf to terminus at Imperial Oil Wharf, Montreal East.....	14,348 lin. ft.

Industrial Sidings

Imperial Munitions Board, Longue Pointe: Harbour property...	224
Imperial Munitions Board, Longue Pointe: Board's property....	1,000
Lyall Construction Company, Longue Pointe: Harbour property.....	854
Lyall Construction Company, Longue Pointe: Company's property.....	2,880
St. Lawrence Sugar Refineries: Company's property.....	310
TOTAL TRACKWORK.....	19,616 lin. ft. (or approximately 3¾ miles)

The cost of the work outside of the Harbour boundary was paid by the Companies concerned.

DREDGING AND FILLING IN GENERAL

Dredging operations during the year were at a minimum, never more than two of the Harbour Commissioners' dredges being in commission in the harbour at one time and part of

the season only one was engaged, but six out of the Commissioners' fleet of eight floating derricks were kept fully engaged, the deficiency in dredged material being balanced by the unloading of ships' ballast and clay excavation. The dredges worked only by day and were practically altogether engaged in rock dredging for the Bickerdike Pier Extension, the bulk of the material going to form the High Level Railroad embankment. One of the dredges out of commission was stationed throughout the season at the Reserved Area, Longue Pointe to hold ships during the loading of explosives.

Dredge No. 3 of the Department of Marine and Fisheries completed the dredging of the 28-ft. channel at the Imperial Oil Wharf at Montreal East, begun in 1917.

The following are the details of dredging and filling in the harbour, in addition to which Dredge No. 4 was on hire at Three Rivers during August and September and dredged 62,935 cu. yds., while Dredge No. 6 during May, June and July removed 19,520 cu. yds. at the Lauzon Dry Dock, Quebec.

Dredging, etc.

In Harbour:	Cu. yds
Bickerdike Pier Extension (rock)	154,934
Maintenance, Windmill Point Basin	4,350
Channel to Imperial Oil Co. wharf at Montreal East by Dredge No. 3, M. & F.	17,400
Sewerage, Elgin Basin	3,200

Service Channel for Railway Extension:

By Derricks	36,650
By No. 1 Crane	165,000

Material from other sources:

Dredge No. 3 (M. & F.) Ship Channel (Sec. 56).....	6,000
Ballast from ships and scavengings from wharf.....	54,000
City contractors.....	45,000
Total cubic yards	486,534 Scow meas't.

FILLING:—

Rock

Railway embankment, by derrick.....	148,000
Wharf maintenance, St. Helen's Island.....	450
Wharf maintenance, Victoria Pier dumper.....	1,000
Wharf maintenance, Sec. 39-42, derrick.....	750
Wharf maintenance Laurier Pier, derrick.....	2,400
Wharf maintenance, Vulcan Wharf, derrick.....	300
Wharf maintenance, Canada Cement Wharf, derrick.....	900
Guard Pier..... "	300
Ship at Victoria Pier "	750
Machine Shop (boxed) "	84
	154,934

Broken Rock, Sewage, etc.		
Railway embankment by derrick.....		4,350
Clay		
By dumper to spoil.....		17,400
Sewage.		
By dumper to spoil.....		3,200
Clay		
Railway embankment by derrick.....		36,650
Railway embankment by crane No. 1..		165,000
Stones		
Laurier Pier, by dumper.....		6,000
Ships' Ballast, etc.		
Railway embankment, by derrick.....	51,000	
Guard Pier, by derrick	1,800	
Section 40 (stock) "	1,200	
		54,000
Ashes, etc.		
Section 28-29, by cart.....	42,000	
Victoria Pier (stock) by cart.	3,000	
		45,000
Total cubic yards		486,534

MAINTENANCE OF DREDGING FLEET, ETC.

The following vessels wintered on the shipways:—

Derrick No. 6.

Tug "Alphonse Racine".

The usual overhaul of machinery and boilers of the dredges, derricks and tugs and a number of minor repairs made. The vessels were all painted and lettered as usual.

At the end of April, tugs "Robert Mackay", "John Young" and "St. Peter" were in turn lifted by the Floating Crane to have new propeller blades replaced which were broken in ice during the fall. Rudder stem of tug "St. Peter" broken, tug hauled and repaired. Dredge No. 6 and tug "Aberdeen" left for Quebec on May 10th.

Four scows were fitted out with fireproof housings for lighterage of high explosives. Tug "Sir Hugh Allan" returned from winter work at Halifax, May 15th.

Dredge No. 4 and tug "Aberdeen" left for work for Three Rivers, August 7th, and returned September 23rd.

During the summer, the following vessels were hauled upon the shipways for repairs and to have hull scraped painted, etc:

Dredge No. 6; tugs "Alphonse Racine", "St. Peter", "Robert Mackay", "Beaver" and "David Seath" and also five flat scows.

A new standard flat scow, No. 56, built during the winter and spring was launched in July.

A steel tube 6 ft. in diameter for Papineau Avenue Sewer was built and delivered and part of a 10 ft. tube was also built at the expense of the City of Montreal.

Tug "Alphonse Racine," constructed in 1905, was sold in November.

ELECTRICAL BRANCH

Power and Operation.

The Harbour Commissioners purchased, under contract, electric power from the Montreal Light, Heat & Power Co. for their requirements, as follows:—

	1916 H.P. Hrs.	1917 H.P. Hrs.	1918 H.P. Hrs.
Elevator No. 1...	940,880	1,103,921	1,132,229
Conveyor Galleries	437,347	524,574	546,381
Freight Hoists....	109,570	102,504	74,573
Harbour Lighting.	145,447	156,550	169,000
Miscellaneous Lighting.....	11,122	13,673	21,002
Elevator No. 2...	1,027,744	1,019,670	959,652
Shed No. 16.....	14,503	14,742	34,604
Shed No. 16, Escalator.....	468	639	323
Engine Shops.....	33,188	45,131	45,327
Harbour Yard....	30,000	28,400	27,300
Sheds Nos. 24 and 25..... (Hay pressing)	1,134,235	431,998	929,115
Temporary.....	.....	3,004	.....

Freight Hoists in Connection with Transit Sheds

	Total Teams Carried	Days in Operation	Commenced Operations	Operations Ceased
No. 1, Shed No. 12:				
1917.....	7,960	184	April 30th	Dec. 1st
1918.....	6,080	188	April 29th	Dec. 3rd
No. 2, King Edward Pier:				
1917.....	11,283	184	May 1st	Dec. 2nd
1918.....	9,650	185	April 29th	Nov. 30th
No. 3, Alexandra Pier:				
1917.....	27,358	199	April 16th	Dec. 2nd
1918.....	18,908	194	April 24th	Dec. 3rd

No. 4, Jacques Cartier Pier:

1917.....	3,548	187	April 23rd	Dec. 2nd
1918.....	4,319	175	May 6th	Nov. 30th

No. 5, Alexandra Pier

1917.....	5,099	88	May 1st	Dec. 1st
1918.....	6,887	157	May 16th	Nov. 16th

Electrical General

The freight hoists did good service throughout the season.

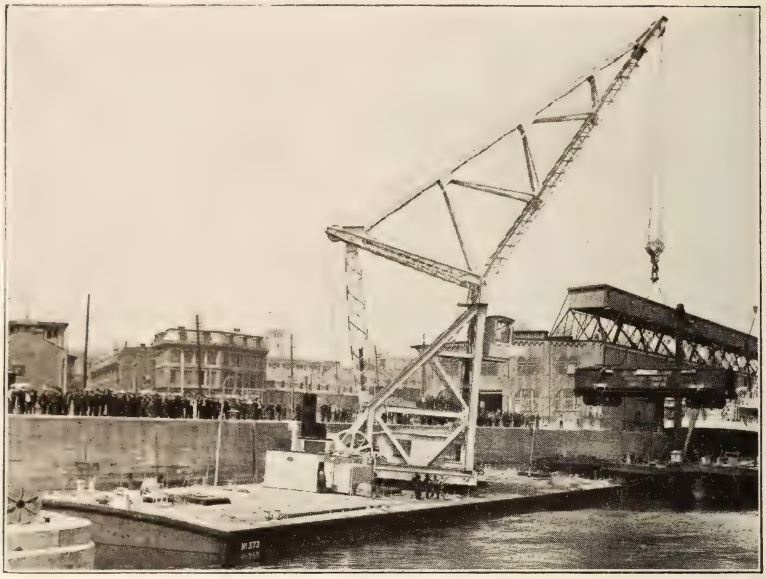
The outside lighting, composed of flame arcs and powerful nitrogen units, was maintained throughout the season and gave good service. This service was given by 190 lamps maintained by the Montreal Light, Heat and Power Co. and 61 lamps by the Harbour Commissioners.

The freight escalator in Shed No. 16 was used for a great variety of freight by the Hudson's Bay Co. and gave good service at the expense of the Company

The electrical equipment of the head office, the dredging fleet, transit sheds, grain elevators, freight hoists, engine shops and sub-stations were maintained and improved, the operating staff carrying on the service without delays or accidents.

FLOATING CRANE

The record of the Harbour Commissioners' Floating Crane speaks for itself. As an adjunct to the port it has proved itself to be most successful. Much of the success of the port and despatch of vessels was due to this splendid machine, which lightered and handled 18,855 tons during the season.



Floating Crane in Operation.

	1917	1918
Number of working days	202	203
Number of days working	176	151
Number of hours working	1,326	1,506
Percentage of time in actual operation	87%	72%
Total number of lifts:		
Commercial	1,763	1,848
Commissioners' service	54	43
Average weight of lifts:	Tons	Tons
Commercial	8	7
Commissioners' Service	20	28
Greatest lift:		
Commercial	75	75

	Tons	Tons
Commissioners' service.....	60	60
Greatest tonnage from single ship	206½	142

Total weight lifted 1918.....18,855 tons
" " " 1917.....15,142 tons

Maintenance

In addition to a multitude of minor general maintenance repairs and the usual erecting and dismantling of fenders, light poles, etc., the following larger items had to be done:—

1. General deterioration rendered imperative before next season the rebuilding of 800 lin. ft. of wooden wharf for a depth of four courses at the allotment of the Dominion Coal Co., Windmill Point.

2. The Longueuil Ferry slip, for the same reason, was reconstructed for a depth of 11 ft.

3. The extension by cribwork and refilling of both return ends of the Canada Cement Company's wharf at Montreal East.

4. Repair to damaged outer corner of Laurier Pier by collision of SS "Hororata". While the break-up during spring was fairly severe on the wharves in the lower harbour and occasioned the following:—

1. Reconstruction of 300 lin. ft. of crib wharf at Section 42, for a depth of 7 feet.

2. The refilling by derrick with 2,400 cu. yds. of rock of the cribwork of the East side of Laurier Pier and deposit by dump scow of 6,000 cu. yds. of stones, (M. & F. Dredge No. 3) along the toe.

3. Rebuilding of 350 ft. of cribwork for a depth of 5 ft. at the outer end of the Sutherland Pier.

4. General overhaul of Doran Wharf, Longue Pointe.

Dredging and Sweeping

The usual tests were made of ship channel, basin and berths and the only obstructions encountered were in Windmill Point Basin and in front of the Elgin Basin Sewer. Fully one acre of the Windmill Point Basin was covered and 4,350 cu. yds. of material, composed of sewage, refuse, coal and broken rock were removed. Derrick No. 7 removed 3,200 cu. yds. of sewage from the Elgin Basin Sewer.

General Maintenance

All drains, manholes, etc. were kept clear and well flushed and the water supply was maintained in good order, 32 hydrants and 13 latrines being in service. The water service to ships was greatly increased, 318 ships being supplied with 2,349,670 cu. ft. of water, more than double the number of ships and more than four times the quantity of water supplied last year at the cost of the steamships.

Sheds and Elevators

Roofs, floors, gutters, downspouts and all details of sheds and galleries were maintained in good repair, the following being the more important items:—

1. Renewal of roofing of Sheds Nos. 7, 8, 9 and 10, galleries ever Sheds Nos. 7, 9 and 10 and gallery between Tower "C" and Shed No. 8.

2. Renewal of 500 lin. ft. of gutter on Shed No. 10.

3. Replacing of wooden decks of winch galleries of Sheds. Nos. 2, 3 and part of 5 entirely with concrete.

4. Painting of interior steelwork, both floors, of Sheds Nos. 4 and 6, the exterior framing and metal sheating of conveyor gallery over Sheds Nos. 8 and 10 and the roofs of 13 Conveyor Tower.

5. Painting of Marine Tower and gallery connecting with Elevator No. 2, including numerous grain spouts.

Railways

The increase in mileage for the year was about 3 miles, making a total of about 48 miles of track that has to be maintained. This department becomes more important each year, and a constantly increasing gang of section and maintenance men were employed from one year's end to the other, keeping switches in order, repairing slip diamonds, renewing ties, rails, switches, etc. and surfacing in general. During the past year no fewer than 5,017 ties were renewed and 1,500 lin. yds. of rails replaced, and it reflects credit on all concerned that in spite of the enormous tonnage handled per mile, no mishap of any consequence occurred to traffic during the year.

Roads, etc.

The scavenging, watering and upkeep of paved, Tarvia, Rocmac, asphalted and ordinary macadamized roadways required the constant vigilance of a large staff of men, who succeeded in keeping the wharf surface in very creditable condition.

Life Saving Equipment

Every precaution was taken to facilitate the saving of life and the prevention of accident, by the erection of railings and the distribution of ropes, gaffs and life preservers at 115 different points along the wharf front.

Raceways at Windmill Point Basin

Although deterioration goes steadily on, there was no serious break during the year, but a little more protection work was necessary at the roadside over the canal raceway at the head of the basin. Messrs. Ogilvie had also to take measures to maintain the timber wing wall at the northwest corner of their culvert, while a small subsidence occurred several times over the old Pillow Hersey flume.

City Sewers

The extension of the Craig St. Sewer was completed and there were no breaks or damage done by other sewers during the year, but it is regrettable that the city authorities have not seen their way to proceed with the various items of their work on the wharf front, which have been standing dormant for a year or more very much to the detriment of the wharf, notably:—

Extension of Delorimier Sewer.
Construction of Desery Street Sewer.
Reconstruction of Nicolet Street Sewer.
Extension of St. Just Street Sewer.

General

The usual force of watchmen, etc., was employed to protect the property of the Commissioners, to guard the public from accident and to regulate the harbour dumping ground.

The break-up last spring, although fairly severe on the wharves in the lower harbour, did not leave much ice on the wharves, and fortunately the weather did all the clearing necessary.

Maintenance of Plant

Locomotives, locomotive cranes, concrete mixers and all tools used in wharf and railway work, water carts, road roller, life saving equipment, etc., were kept in repair during the season by the Harbour Yard staff.

Repairs were also made to plant for outside firms.

WATER LEVELS

The depth of water for navigation in the Montreal Harbour Ship Channel and on the Sill of Lower Lock Lachine Canal is given in the following table:—

	Depth on old Lock Sill Lachine Canal		Depth in Harbour Channel	
	Average 1901-1917	Average 1918	Average 1917	Average 1918
May	19′ 8″	18′ 11″	34′ 9″	34′ 4″
June	19′ 0″	17′ 3″	34′ 9″	32′ 8″
July	17′ 0″	16′ 9″	33′ 5″	32′ 2″
August	15′ 11″	15′ 1″	32′ 3″	30′ 6″
September	15′ 3″	15′ 2″	30′ 11″	30′ 7″
October	15′ 1″	16′ 5″	31′ 0″	31′ 10″
November	15′ 2″	17′ 9″	31′ 5″	33′ 2″

The value of favourable water levels may be given by a comparison between the years 1918 and 1914, when in each year the stress of war made the value of tonnage abnormal to a degree. In each summer season Lake Ontario was almost at the same stage, month by month, but in 1914, conditions for navigation were very acute, while in 1918 they were most favourable.

Comparing the season with 1914, the following table gives an interesting illustration:—

Table showing Average Level of Lake Ontario and the Average Depth in the Ship Channel and Montreal Harbour, each Month during the Season.

	Average per Month					
	Lake Ontario		(1918) (Compared with 1914)	Ship Channel		(1918) (Compared with 1914)
	1914	1918		1914	1918	
May	246.77	247.13	0.36 higher	33′ 3″	34′ 5″	1′ 2″ higher
June	246.78	247.01	0.23 do	31′ 9″	32′ 8″	0′ 11″ do
July	246.58	246.85	0.27 do	30′ 10″	32′ 2″	1′ 4″ do
August	246.22	246.43	0.21 do	29′ 10″	30′ 6″	0′ 8″ do
September	245.95	246.20	0.25 do	29′ 5″	30′ 7″	1′ 2″ do
October	245.48	246.00	0.52 do	28′ 10″	31′ 10″	3′ 0″ do
November	245.16	246.00	0.84 do	28′ 9″	33′ 2″	4′ 5″ do

As an example of the value of favourable depth of water for navigation, the following is a statement for 1918, as compared with 1914:

	Vessels sailing from Montreal drawing 28 feet and over		Maximum draft	
	1914	1918	1914	1918
May	6	4	29′ 3″	30′ 5″
June	8	14	29′ 0″	30′ 0″
July	4	9	28′ 6″	30′ 2″
August	2	14	28′ 6″	29′ 6″
September	..	5	..	28′ 11″
October	..	10	..	29′ 3″
November	..	14	..	30′ 1″
	20	70		

The value to commerce via St. Lawrence Route of favourable depths for navigation in the Ship Channel is therefore most apparent. It would be even more beneficial if these ample depths could be assured, as larger vessels would be assigned to the routes if it could be known that they would be able to carry their full cargoes throughout the season.

LABOUR

The anxiety of the management of the various railways for prompt unloading and, regardless of railway cars, the intense desire for the speedy loading and despatch of vessels, combined with the very difficult freight to be handled, resulted in grave concern as to the labour situation at various times throughout the summer. War had taken many of the men usually available. Munition manufactories had taken many more, but it is not too much to say for the longshoremen in the Port of Montreal that they did their share of the national work with a splendid spirit, day and night, Sundays and holidays, all through the season.

The handling of 50,000 tons of spruce lumber, usually in long lengths and requiring the greatest of care, involved an immense amount of actual labour. The handling of steel in all shapes and sizes; the handling of a tremendous number of tractors, airplanes, flying boats, trucks and machinery of every imaginable description, and the safe stowing on board ship of same, required all the skill of the marine superintendents and the splendid man-power in the harbour.

In the elevators it requires four to five men working half an hour to unload a car containing from 1,500 to 2,000 bushels.

The Harbour Commissioners' Railway Organization and power were taxed to the limit. During the month of October and in other months conditions were only slightly less severe—the export freights in the Port of Montreal for the 31 days, involved the bringing in, marshalling, unloading and taking out empties, of 800 cars per day. In addition to this, there was the important freight, the transfers, the coal trade and various other railway freight to be handled. There were no embargoes lasting more than a few hours; there were very few delays, and the freight handling in Montreal Harbour was in every respect a credit to the Port Organization.

More than ever before, the Harbour Commissioners placed their construction plant and organization at the disposal of freight handling requirements, and this to a great extent helped out the difficult situation during the summer of 1918.

The cost of labour was high. It was a serious matter for the authorities to pay such high rates of wages, but otherwise, in spite of the uncertain outlook from day to day, the season was carried through in a manner satisfactory to both the men and other authorities.

The ships were navigated and handled by some 40,000 officers and seamen.

The following table shows the maximum and average number of workmen employed by the Harbour Commissioners during the season of 1918:—

	Maximum	Average
Maintenance of Harbour	123	109
Police	93	87
Construction of wharves, tracks, etc.	112	99
Harbour Yard: carpenters, blacksmith, etc.	25	24
Sawmill and Timber Boom	12	10
Round House; Machinists, etc.	27	24
Machine Shop	72	60
Shipyard	35	30
Dredging Fleet: Dredges, tugs, etc. crews	170	135
Elevator No. 1	37	34
" " baggers	38	29
" " shovellers	40	25
Elevator No. 2	34	30
" " baggers	38	25
" " shovellers	68	36
Conveyor Galleries	48	40
Floating Elevators	6	5
Electrical Department: Hoists, etc.	26	23
Traffic Department	97	90

SAWMILL AND TIMBER BOOM

The sawmill worked 137 days during the season, sawing hard and soft wood, the total amount sawn being 641,185 ft. B.M. and 2,752 railway ties.

The total amount planed was 71,261 ft. B.M.

The total timber and lumber delivered to works during the season was 319,787 ft. B.M. and 8,515 ft. lineal.

Total delivered to outside firms 259,067 ft. B.M. and 4,358 lin. ft.

Construction Materials

The quantities of materials used during the season were:—

Cement	4,075	bags.
Sand	458	cubic yards.
Crushed Stone	231	tons.
Railway ties	15,141	
Timber	319,787	ft. B.M.
"	8,515	lin. ft.
Stone for macadamizing	204	tons.

POLICE DEPARTMENT

Organized in 1913, the Harbour Police Force, consisting in 1918 of 5 Officers and 84 constables, all uniformed and armed, regulates the traffic on the wharves, maintains order and protects life and property within the Harbour.

Following the rule established on the declaration of war in the beginning of August 1914, admission to the Harbour during the past year was restricted to persons holding special passes issued by the Commissioners, which necessitated the placing of police guards at all entrances, their principal duties being to ward off undesirables or suspicious characters, as well as to regulate vehicular traffic at these points. The utility of their efforts in this direction may be judged from the fact that no accident, not even of a minor nature, occurred on that portion of the Harbour under their care, notwithstanding the free movement of railway and vehicular traffic.

The services of 30 Harbour constables were continuously at the disposal of the various shipping companies during the season.

215 persons were arrested and brought before magistrates and recorders for different offences during the season.

THE "FLU."

The first sign of the Influenza in Montreal Harbour occurred in July. Native sailors on some of the ships arriving in port were suffering from mild attacks of the "flu." By arrangement between the shipping interests and the Harbour Commissioners, a portion of one of the upper storeys of one of the sheds was isolated and equipped with 100 beds. The men recovered very quickly in the new quarters.

About 87 were treated and there were no deaths.

The outbreak lasted only from July 11th to 21st.

The more serious outbreak amounted to an actual epidemic, occurring in October.

After a conference with the City Health Authorities, it was found that emergency hospitals were not available for patients from ships in the harbour. The regular hospitals soon had to refuse patients and the Harbour Commissioners and Shipping Interests had an anxious time, in view of the urgency of the shipping requirements and the alarming nature of the d'sease.

At the Catholic Sailors' Club an emergency hospital was immediately opened and equipped by the Harbour Commissioners. The prompt removal of the patients and the fumigation of the ships quieted the alarm and the business of the port continued as usual.

As soon as the epidemic was over and the City Hospitals took care of the sick mariners, the emergency hospital was closed.

TRIBUTE.

The Commissioners desire to take this opportunity of recording a deep tribute to the officers and seamen of the Mercantile Marine, especially those who have, during the past five years, manned the vessels trading to and from the Port of Montreal.

These Silent Heroes of the Sea, whose courage and fearlessness and devotion to duty, which nothing could affect or deter, stood steadfast through trials and dangers in order that the supply of food and munitions so essential to the success of the cause might be carried on.

The country owes them a debt of gratitude that can never be forgotten or fully repaid, and the Commissioners propose in the near future to erect a lasting memorial in the Harbour of Montreal in recognition of their bravery and unflagging devotion to duty.

SEASON OF NAVIGATION, 1918.

The channel was reported clear on April 20th. The Government ice-breaker "Lady Grey" arrived from Quebec the following day.

Unfortunately there was a long wait for free river before the first vessel, the S.S. "City of Marseilles," arrived on 8th May.

The last vessel to depart from Montreal for sea was the steamer "Natironco" on December 17th, this being the latest date on record of any vessel leaving Montreal and reaching Quebec.

Between December 1st and 17th, 21 vessels sailed from Montreal, all safely reaching Quebec and finally closing the most successful season in the history of the Port.

INLAND WATER TRANSPORT

Canada and the Harbour of Montreal are vitally interested in the question of Inland Water Transport, and in securing the transport of Canadian products via Canadian transportation routes and ports.

The completion and opening of the enlarged New York State Barge Canal and the extensive improvements made in United States ports, accelerated by the war, will result in keener and more aggressive competition for Canadian business.

The Harbour Commissioners of Montreal view with concern the completion and equipment of the Barge Canal, as being a considerable factor in the diversion of Canadian products through the U.S. ports. The whole question must be looked at and studied from a broad consideration of transport, especially of grain, from the head of the Great Lakes to Europe.

In the past, through rates have given a slight margin in favor of Montreal, which to some extent has been affected by the higher St. Lawrence Marine insurance. Experience and time will show what effect the enlargement of the Erie Canal will have—undoubtedly it will have some.

The thought in some Canadian minds is that the new Welland Canal, when completed, will throw the advantage Canada's way. This is open to doubt, for the reason that this Canal is free of charge to United States ships, though constructed at the sole expense of the Canadian people, and the United States will be enabled to bring their large lake boats through Lake Ontario to Oswego, N.Y., and thereby still further reduce the cost of transporting grain from Buffalo to New York.

It is true that the Canadian route may benefit to some extent by the construction of the Welland Canal, which will

permit large lake vessels to come to Prescott and Kingston, but this will require the most modern grain handling facilities at these points, as well as consideration of the efficient handling of grain from these points to Montreal, which elevators, etc., would cease to be of use when the whole St. Lawrence canal system is completed.

The ideal and proper method to pursue to get full benefit of the Welland Canal is a simultaneous development of all the canal systems to Montreal, no matter by what scheme.

The canalization of the St. Lawrence River, with its immense power possibilities, is, in the opinion of the Commissioners preferable to deepening and widening the present canal system.

Whichever method, however, is finally adopted, the completion of a scheme of such magnitude would require expense and time, but it is one that must be carried out and should be aggressively proceeded with. If it is not found possible to proceed with the whole scheme simultaneously, the opinion of the Harbour Commissioners is that the portion of the inland transportation system which is most immediately required, and which will give the most immediate benefits, is the section of the canal system commencing at Montreal working Westward.

The Commissioners have repeatedly recommended the commencement of the enlargement at this end in order that immediate economic results be obtained. They feel that the proceeding, in the first place, with the lower end of the enlarged St. Lawrence canal system, starting with the Lachine Canal, will yield economic results which will give immediate benefit to Canadian transportation, without the resultant benefit to our foreign competitors, and the continuation of such a policy of development, by proceeding Westward with the Soulanges and Cornwall Canals as soon as the Lachine Canal

is completed, would place Canada in a more and more outstanding position to handle its products through Canadian ports, without benefit to others.

The Commissioners therefore would urge, as a business measure, and one of such grave importance to the country, the immediate commencement of construction work at the Eastern end of the Canadian Canal Water Transport system.

APPRECIATION

The review of the work done would not be complete without recording an expression of appreciation of the manner in which the many difficult problems have been solved, and the general operation and maintenance work carried out by the staffs of the different departments.

The accomplishments of the past four and a half years called for the unceasing and exacting attention of the entire force of officials and employees, and the Commissioners desire to bear testimony to their zeal, efficiency and co-operative spirit.

HARBOUR DREDGING

Statement showing the number of days worked by each dredge and the quantity dredged at each place in 1918

Name of Dredge	Places at which dredging was done	Time of Service		Quantities dredged		Character of material dredged
		Days	Total	Cu. yards	Total yds.	
Dredge No. 5	Extension of Bickerdike Pier	132		98,750		Rock.
	Maintenance dredging	15	147	4,350	103,100	Loose rock and rubbish.
Dredge No. 6	Extension of Bickerdike Pier	107½	107½	55,300	55,300	Rock.
	Total		254½		158,400	
Government Dredge No. 3	Channel, Section 101	20½	20½	17,400	17,400	Hard pan and clay.
	GRAND TOTAL		275		175,800	

LIST OF HARBOUR COMMISSIONERS DREDGING PLANT, 1918.

Description of Vessel	Hull. Length	Hull. Breadth	Hull. Depth	When built	Engines. Kind of Engine	No. of cylinders	Dia. of cylinders	Length of stroke	Pressure of steam	Capacity of Bucket	Depth to which Dredge can work	Remarks
	ft. in. over all	ft. in. beam	ft. in. over all				inches	inches	lbs.	c.y.		
Dredges.												
Boom Spoon Dredge J. Kennedy..	90 0	36 0	10 3	1892	Horizontal non-condensing	2	16	18	128	7	40	Wooden hull.
" " " No. 4.....	90 0	36 0	10 9	1900		2	16	18	140	7	40	Steel hull.
" " " No. 5.....	104 0	36 0	10 9	1910		2	16	18	140	7	40	Steel hull.
" " " No. 6.....	104 0	39 0	10 9	1912		2	16	18	140	7	50	Steel hull.
Elevator Dredge "Premier".....	86 0	31 5	9 2	1905	Horizontal high pressure	2	14	15				Wooden hull.
Derricks.												
Clam shell Derrick No. 1.....	76 0	27 6	8 0	1899		2	12	14	110			Wooden hull.
" " " No. 2.....	80 8	30 0	7 6			2	10	12	120			Wooden hull.
" " " No. 3.....	76 0	27 6	8 0	1900		2	12	14	110			Wooden hull.
" " " No. 4.....	75 0	26 10	7 6	1892		2	12	14	110			Wooden hull.
" " " No. 5.....	75 0	26 10	7 6	1892	Horizontal high pressure	2	12	14	110			Wooden hull.
" " " No. 6.....	75 0	26 10	7 6	1892		2	12	14	110			Wooden hull.
" " " No. 7.....	88 0	31 0	9 0	1913		2	12	14	140			Wooden hull.
" " " No. 8.....	88 0	31 0	9 8	1915		2	12	14	140			Wooden hull.
Drilling & Blasting Boat.....	80 0	27 0	5 6	1895		.....	.....	.....	100			Three 5 in. steam drills.
Drill Boat No. 1.....	60 0	20 0	5 0	1909		.....	.....	.....	80			Two 5 in. steam drills.
Tug Boats.			Hold									
Tug "St. Peter".....	74 8	16 1	8 6	1875	Vertical non-condensing	1	20	22	125			Wooden hull. Rblt. 1903
" "Courier".....	36 9	9 3	6 2	1900		1	10	12	125			Composite hull.
" "Aberdeen".....	79 3	18 3	9 0	1895	Vertical condensing	1	16	24	120			Steel hull.
						1	32					
" "Robert Mackay".....	80 9	17 6	10 0	1899		1	16	24	125			Steel hull.
						1	32					
" "Alphonse Racine".....	90 0	18 6	12 1	1905		1	16	24	150			Steel hull.
						1	32					

" No. 1	90	0	26	0	6	0	Reblt. 1893	Horizontal non-condensing	1	15	20	100	Iron sheathed with elm. Formerly Floating Elevator, No. 1.
" "Sir Hugh Allan"	130	0	26	6	15	0	1911	Verticle triple expansion condensing	1 1 1	16 25 40	24	180	Steel hull, twin screws.
" "Hon. John Young"	91	8	22	0	9	0	1911	Vertical compound condensing	1 1	12 24	18	140	Steel hull, twin screws.
" "Beaver"	64	3	15	3	7	3	1892	Vertical high pressure	1	18	20	115	Wooden hull.
" "Passe-Partout"	49	1	11	3	5	7	1912	Vertical high pressure	1	9	10	125	Wooden hull.
" "David Seath"	75	0	19	0	10	2	1915	Vertical condensing	1 1	13 26	22	150	Wooden hull.
					over all								
Testing boat	73	3	14	0	3	1	1897						Two wooden scows braced 16 ft. apart.
	73	3	14	0	3	1							
Scows.								**Capacity.**					
2 Flat deck scows Nos. 2 & 4	75	0	20	2	6	0	1876	67½ yds.					
1 " " No. 10	90	0	20	0	5	5	....	80 "					
2 " " Nos. 21 & 22	85	0	25	0	7	5	1891	150 "					
2 " " Nos. 23 & 24	85	0	25	0	6	9	1891	150 "					
5 " " Nos. 25-29	85	0	25	0	6	9	1892	150 "					
5 " " Nos. 31-35	85	0	25	0	6	9	1893	150 "					
2 " " Nos. 39 & 40	85	0	25	0	6	9	1903	150 "					
2 " " Nos. 41 & 42	87	0	25	0	7	6	1904	150 "					
12 " " Nos. 43-54	100	0	30	0	9	0	1911–15	300 "					
2 Dump scows, Nos. 36 & 37	106	0	26	10	9	6	1899	200 "					
1 " " No. 38	106	0	26	10	9	6	1900	200 "					
2 " " (Gilbert's)	60	0	20	0	6	0	....	100 "					
1 large coal scow	138	0	32	0	8	5	....	400 tons					
1 floating concrete machine	100	0	34	0	8	6	1915 Reblt.						
1 floating pile driver	50	9	24	2	5	8	1896						
1 floating air plant													Converted floating grain elevator.

Note.—Tug "Alphonse Racine" was sold in 1918.

PORT OF MONTREAL

Combined Statement showing the Number and Tonnage of all Vessels that arrived in Port during the past Ten Years

Year	TRANS-ATLANTIC		MARITIME PROVINCES		INLAND		GRAND TOTAL	
	Vessels	Tonnage	Vessels	Tonnage	Vessels	Tonnage	Vessels	Tonnage
1909.....	371	1,436,963	299	474,450	10,991	3,146,494	11,661	5,057,907
1910.....	411	1,658,414	336	574,808	13,636	4,327,799	14,383	6,561,021
1911.....	401	1,695,613	361	642,639	11,670	4,275,019	12,432	6,613,271
1912.....	409	1,775,487	327	628,437	12,586	4,649,767	13,322	7,053,691
1913.....	477	2,020,333	343	670,202	13,426	5,703,467	14,246	8,394,002
1914.....	551	2,039,133	365	716,385	12,225	6,288,939	13,141	9,044,457
1915.....	484	1,657,728	331	603,546	8,572	4,222,426	9,387	6,483,800
1916.....	569	1,965,161	129	169,295	7,297	3,558,872	7,995	5,693,328
1917.....	579	1,984,233	68	26,534	6,274	3,206,542	6,921	5,217,309
1918.....	644	1,910,621	30	22,861	6,102	3,313,908	6,776	5,247,390

PORT OF MONTREAL

Statement showing the Classification of Trans-Atlantic Vessels that arrived in Port during the past Ten Years

Year	Steamship		Barques		Ships and Brigs		Schooners		Grand Total	
	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage	Vessels	Tonnage
1909	371	1,436,963	..	....	..	....	..	....	371	1,436,963
1910	410	1,656,794	..	....	1	1,620	..	....	411	1,638,414
1911	401	1,695,613	..	....	..	....	..	....	401	1,695,613
1912	409	1,775,487	..	....	..	....	..	....	409	1,775,487
1913	477	2,020,333	..	....	..	....	..	....	477	2,020,333
1914	551	2,039,133	..	....	..	....	..	....	551	2,039,133
1915	483	1,656,634	..	....	..	1,094	..	....	484	1,657,728
1916	569	1,965,161	..	....	..	....	..	....	569	1,965,161
1917	579	1,984,233	..	....	..	....	..	....	579	1,984,233
1918	644	1,910,621	..	....	..	....	..	....	644	1,910,621

PORT OF MONTREAL

Statement showing Classification of Vessels that arrived in Port, for the past Ten Years, from the Lower St. Lawrence and Maritime Provinces

Year	Steamships		Schooners		Grand Total	
	No.	Tonnage	No.	Tonnage	No.	Tonnage
1909	273	470,936	26	3,514	299	474,450
1910	306	572,022	30	2,786	336	574,808
1911	330	639,752	31	2,887	361	642,639
1912	292	625,099	35	3,338	327	628,457
1913	299	666,053	44	4,149	343	670,202
1914	321	712,327	44	4,058	365	716,385
1915	312	601,916	19	1,630	331	603,546
1916	97	165,473	32	3,822	129	169,295
1917	34	23,635	34	2,899	68	26,534
1918	18	20,589	12	2,272	30	22,861

PORT OF MONTREAL

Statement showing the Nationalities and Tonnage of Sea-going Vessels that arrived in Port during the season 1918, that were navigated by 40,094 seamen.

NATIONALITY	Number of Vessels	Tonnage
British	479	1,653,477
American	175	244,949
French	9	4,393
Italian	3	9,516
Norwegian	3	7,236
Portugese	2	5,931
Belgian	1	2,838
Swedish	1	1,914
Brazilian	1	3,228
	674	1,933,482

Of the above, 657 were built of iron or steel, with a tonnage of 1,930,103, and 17 were built of wood, with a tonnage of 3,379 tons.

PORT OF MONTREAL

Statement showing the dates of the Opening and Closing of Navigation, the First Arrival and the Last Departure for sea; also the Greatest Number of Vessels in the Port at one time, during the past Ten Years.

Year	Opening of Navigation	Closing of Navigation	First Arrival from Sea	Last Departure for Sea	Greatest number of Vessels in Port at one time.			
					Seagoing		Inland	
					No.	Date	No.	Date
1909	April 16th	Dec. 27th	April 23rd	Nov. 28th	22	Nov. 9th	107	Aug. 31st
1910	" 1st	" 7th	" 11th	Dec. 1st	25	May 18th	122	Sept. 18th
1911	" 23rd	" 29th	" 26th	" 3rd	24	Aug. 18th	85	June 5th
1912	" 23rd	" 21st	" 30th	" 3rd	22	July 31st	86	Aug. 21st
1913	" 9th	" 27th	" 19th	Nov. 29th	29	Oct. 3rd	92	July 25th
1914	" 22nd	" 15th	" 29th	Dec. 4th	56	Aug. 21st	94	Aug. 17th
1915	" 11th	" 15th	" 30th	" 11th	34	Sept. 21st	66	July 26th
1916	" 22nd	" 18th	May 1st	" 6th	41	" 12th	62	" 25th
1917	" 19th	" 7th	" 1st	" 7th	37	Nov. 12th	52	Sept. 11th
1918	" 21st	" 17th	" 7th	" 14th	46	" 7th	50	Oct. 10th